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VIRTUAL NO MORE

THE REALITY BEHIND SONY AND FACEBOOK'S MOVE INTO IMMERSIVE VIDEO GAMES

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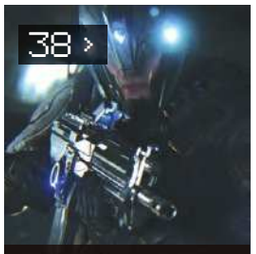

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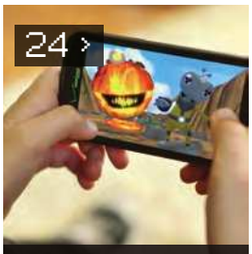

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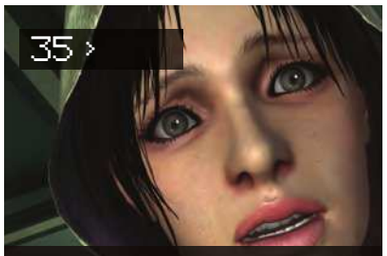

MO-CAP FOR INDIES
Faceware's latest offering

REGULARS

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EDITORIAL

ALL EYES ON THE HEADSETS

ALARMS BARK AT me from all around, warning me of an enemy missile lock. While my hands send my craft left to dodge, my head turns right to seek my next target. The cockpit around me protects me from the vacuum of space.

The demo of CCP's virtual reality space dogfighter *EVE Valkyrie* only lasts for 90 seconds, but it takes a fraction of that to see the appeal of virtual reality: both to developers and consumers. It's a technology that we've been longing for since first discovering it in the realms of science fiction – and now we can physically put it over our heads. Now it's science fact.

Oculus Rift has, of course, been making waves for almost two years now, and it was perhaps inevitable that one of the traditional platform holders would fight back with something like PlayStation's Project Morpheus. But I don't think anyone can honestly say they predicted that Facebook would muscle in with a $2bn acquisition of the pioneering Oculus VR.

The why and the how of this surprising deal invites interesting discussions, but the burning question is: now what? As an indie, Oculus was a nice project for us to follow in the hopes that it would one day be in our hands. But with Facebook now calling the shots and Sony shouting about its own tech, virtual reality has just been given a violent shove from potential game-changer to oncoming storm. For a concept as ambitious as VR to have gained such high-profile attention, you can't help but feel that even more heads will be turning to the tech in the next few months.

Last month, I would have said virtual reality wouldn't be available to the public for another year or so. Now it's impossible to resist dreaming that it might be on shelves in time for Christmas.

And, far more than any next generation console, virtual reality really does open doors to developers to create entirely new experiences, titles that we still can't conceive. It will be a bumpy road, with many fresh obstacles to overcome, but its a journey that we on *Develop* will hopefully be able to guide you through in the coming years.

James Batchelor
james.batchelor@intentmedia.co.uk

"There's no going back" as top engines race to the bottom

Unreal and CryEngine challenge Unity with new subscription models, Unity warns this shift is irreversible

by James Batchelor

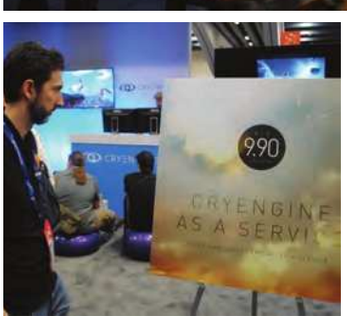
THREE OF THE leading engine providers are now locked in a battle for the attention of small developers as new subscription models have brought them into direct competition.

At last month's Game Developers Conference in San Francisco, Epic Games announced its Unreal Engine 4 is now available to all devs for just $19 per month – a move targeted at everyone from indie studios to "high-end *Minecraft* players" looking for a new creative outlet.

Shortly after, Crytek revealed its own CryEngine would be available for a monthly subscription of just $10.

Both business models bring Unreal Engine and CryEngine closer to Unity's long-established offering of free technology for all developers. But, speaking to *Develop* in San Francisco, Unity CEO David Helgason was unfazed by these manoeuvres.

"Competition is interesting – it keeps things challenging, and it's great for the customer," he said. "The price of engines have been coming down a lot in the last year, and I think we drove a lot of that. It's interesting that all the engines now have these very flexible low-priced models."



Unity's David Helgason (below), Epic's Tim Sweeney (far right) and Crytek all had game-changing reveals for devs during GDC

However, the Unity boss did hit out at Epic's royalty clause, which states that any Unreal Engine subscriber must pay back five per cent of any gross revenues generated through their games, whether that's through sale price, in-game ads or microtransactions.

"Five per cent doesn't sound daunting but what people often don't realise is that many pretty good businesses only have ten to 15 per cent margins, so that could be pretty heavy on a company," Helgason said.

"We really want to focus on helping them get extra revenue via things like Applifier and game ads. It's better to have additional revenue than to be charged for it."

> ***"Last generation it was the triple-A teams. But now indies are taking over the world."***
>
> Tim Sweeney, Epic

EPIC CHANGES

Also at GDC, Epic Games co-founder Tim Sweeney told *Develop* that the royalty condition is not as sinister as people think, and that the Unreal firm will only benefit if developers do.

"We've built this model so that, with the royalty structure, we're only going to succeed with this business if the companies that use our technology succeed with it themselves," he said.

When asked how he felt now that his company had positioned itself as a closer rival to Unity, Sweeney said:

"We're really impressed with the business Unity has built and the community they've developed around their products and services.

"Everything from the Unity Asset Store to the huge variety of games people are building with it – we've certainly drawn inspiration from that, and I really look forward to building on that and how Epic can go even further with an open development model, giving any developer all of the advantages we have when building our games."

Commenting on the additional competition from CryEngine, Sweeney said it was inevitable that high-end tech would become more widely available for a lower price.

"The world's changed," he said. "Last generation, it was all about huge teams doing triple-A games development and other big projects. But now the indies are really taking over the world.

"You now see projects and teams of all sizes, often run on their own merits; it reminds me a lot of the shareware days where I started out in 1991. New distribution channels like the App Store and Steam have really democratised games development to the point where it's simple, pure and driven by developers again."

NO TURNING BACK

These announcements represent an irreversible shift in the engines markets, with the focus now primarily on making tech available for as low a fee as possible.

"We realise this is a permanent decision we've made about the future of Unreal Engine," said Sweeney. "When a company grows more generous over time, everybody loves them, and when a company becomes stingier over time, they're hated.

"But you know what? Since 1994, we've been doing licensing deals with companies throughout the industry where they get access to the game engine. Major triple-A developers and publishers have signed up for deals that involve paying royalties for the engine, and we think that's the best way to build really good, long-term, enduring partnerships."

Helgason adds: "There's definitely no going back. We went to free and freemium four-and-a-half years ago, and we've been very happy with that model. Now people are following that. It's not unexpected – I don't know any industry where the pricing goes up." ■

You can check out *Develop's* guide to game engines on page 38.

develop iPad

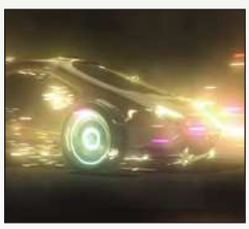
Videos are available within the iPad edition of Develop on iTunes and the browser-based Digital Edition, which can be accessed at develop-online.net

THIS MONTH

Check out the video demos of the latest new technology and design techniques.

Watch Epic's new Unreal Engine 4 in action

P04



Unity previews the fifth iteration of its game engine

P38

Crytek's presents what's possible with CryEngine

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Long-awaited relief comes to the UK games industry

Devs across the country express joy for the much-delayed approval of UK games tax breaks

by Craig Chapple

LATE MARCH FINALLY saw the arrival of UK games tax breaks, potentially signalling the start of a new era for the sector.

A year after the European Commission blocked proposals for incentives, on March 27th it announced that all its concerns over whether the UK needed tax breaks had been dispelled, and developers could start claiming a 25 per cent tax break from April 1st onwards.

The approval marks the end of a long campaign by industry trade bodies TIGA and UKIE, as well of a host of other advocates in UK games.

"The tax breaks help level the playing field and UK companies like Frontier will benefit significantly from it over time. I have always been a big supporter of the UK; it is why Frontier floated here, and why Raspberry Pis are manufactured here," said Frontier CEO David Braben.

"The tax breaks will be very helpful in restoring the balance in our industry. I applaud the government for finally pushing this through."

Reflections general studio manager Giselle Stewart added: "Thanks to TIGA and UKIE's relentless campaigning, this is a great day for the games industry in the UK

"The recognition that the UK contributes culturally unique content and talent to the fastest-growing form of entertainment in the world validates what Ubisoft's local studios – and all video games developers in the UK – have accomplished and will continue to accomplish. We are equally excited by the potential job creation and economic growth this opens up for our industry."

But after years of campaigning and the lengthy delay in getting approval from the EC, is it too late for the UK games industry? Despite the closure of some high profile studios during the last few years, many developers still welcome the incentives.

Below left to right: Giselle Stewart, David Braben, Debbie Bestwick, Imre Jele, Mark Gerhard

> ***"Tax breaks are never too late, but we've lost ground on the Finnish and the Canadians."***
>
> Debbie Bestwick, Team 17

"Tax breaks are never too late, but we've already lost ground on more receptive government schemes such as the Finnish and Canadians, but regardless we are happy for the arrival of the breaks," said Team 17 MD Debbie Bestwick.

"It's long overdue and as long as it's run the way it should be it will greatly help all UK games makers to create more jobs and games."

Bossa Studios co-founder Imre Jele added: "There's a fear that this tax break is 'too little too late', and while I can't say that this view is completely unfounded, I remain optimistic.

"We have now been given a level playing field to match against other countries and I strongly believe that British and European creativity and ingenuity will ultimately prevail. We have a fantastic cultural heritage in storytelling and gameplay, and now the financial boost to fully implement our visions.

"I also hope that this tax break invites companies and investment to move here, encourages new start-ups to be formed, and brings home the talent we've lost."

Jagex CEO Mark Gerhard said now tax breaks have been approved, the sector needs to show the effort to obtain them has been worthwhile.

"Tax breaks for the British games industry have been a very long time coming, but this is far from being the end of the matter," he stated.

"Studios across the UK need to collectively show that the fight for their introduction has been a worthwhile one by maximising their potential to deliver a robust, expanding games industry in this country.

"Our industry should be held in the highest regard, strengthening the British economy and fuelling job creation, both things the emergence of tax breaks will help reinforce."■

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DEVELOP DIARY

Your complete games development events calendar for the months ahead

DIARY DATES

NORDIC GAME 2014
May 21st to 23rd
Malmö, Sweden
www.nordicgame.com

APRIL 2014

QUO VADIS 2014
April 8th to 10th
Berlin, Germany
www.die-entwicklerkonferenz.de

GAMES FOR CHANGE FESTIVAL 2014
April 22nd to 24th and 26th
New York, USA
www.gamesforchange.org/festival

EAST COAST GAME CONFERENCE 2014
April 23rd to 24th
Raleigh, USA
www.ecgconf.com

F2P SUMMIT
April 24th
London, UK
www.f2p-summit.com

MAY 2014

NEUROGAMING 2014
May 7th to 8th
San Francisco, USA
www.neurogamingconf.com

CLOUD GAMING EUROPE 2014
May 19th to 20th
London, UK
http://bit.ly/PX15rU

CASUAL CONNECT ASIA 2014
May 20th to 22nd
Singapore, Asia
asia.casualconnect.org

OTTAWA INTERNATIONAL 2014
May 25th to 27th
Ottawa, Canada
www.oigc2014.com

NEXT MONTH'S ISSUE

Develop #149 – May 2014

FREE-TO-PLAY GAMES

A look at how and why developers should create freemium games, with case studies and insights into the latest developments in this sector. We also discuss the future of the market in the face of new legalisation.

QA & LOCALISATION FOCUS

We speak to the QA and localisation firms that offer free testing or samples, and why you should consider paying for the full service. We'll also have case studies on recent best-sellers and how QA firms helped ensure their success.

WEB DEVELOPMENT

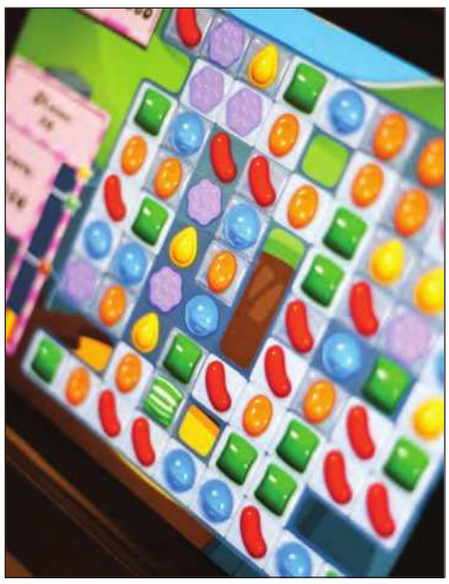
Browser games have created a whole new market for developers to tap into. We look at the best tools and techniques available.

FREE MIDDLEWARE

Whether striving for next-gen realism or trying to stand out on mobile, we explore the various free development tools available, from engines for your game's foundation to middleware to add polish in the final stages.

REGION FOCUS: CHINA

We look across to the Far East to drop in on China, one of the fastest-growing gaming markets. Home to a host of social, MMO and mobile makers, we'll discuss how they've attracted such huge audiences with their titles.



COMING SOON

DEVELOP #150
JUNE 2014

- Racing special
- Exploring artifical intelligence in games
- A view on voxels
- Guide: User interfaces
- Region Focus: Canada

DEVELOP #151
JULY 2014

- Audio special
- Building a community
- How to create the perfect developer diary
- Guide: Texturing solutions
- Region Focus: Wales

AT A GLANCE

APRIL 8TH
Quo Vadis 2014
Berlin's premier games development festival rebrands and expands.

APRIL 11TH
Kinect Sports Rivals
Rare hopes to change perceptions of Kinect with its debut Xbox One title.

APRIL 18TH
The Amazing Spider-Man 2
Andrew Garfield returns as the web head in the sequel to the 2012 reboot.

APRIL 24TH
F2P Summit
MakieLab founder Alice Taylor is to speak at this month's F2P meet-up.

APRIL 29TH
International Dance Day
Hit the dancefloor and show off your Napoleon Dynamite-style moves.

APRIL 30TH
Child of Light
Ubisoft's arty, turn-based fantasy RPG arrives on download stores today.

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Variable declarations

//COMMENT: BUSINESS

Starting up at Three Fields Entertainment

Criterion co-founder **Alex Ward** reveals all about the philosophy behind his new studio

Alex Ward is keen for his new team at Three Fields Entertainment to avoid being pigeon-holed into certain disciplines like art and programming, allowing them to work on more ambitious projects, just as he did when making Black (main)

LAST MONTH, I formed a new British games company called Three Fields Entertainment, along with Fiona Sperry, formerly the studio head and general manager of Criterion Games in Guildford.

Why Three Fields? Well, the name is based on a line in the script of Christopher Nolan's upcoming science fiction film *Interstellar*. The lead character is asked to join a space mission looking "for people skilled in at least three fields". And that got me thinking.

I try not to reflect on the past, but one of the things I wish I had reversed about Criterion would have been the trend towards specialisation and teams split by discipline.

As companies grow, so do their lists of job titles. Other companies have these weird things called 'Job Family Matrixes'. However, the minute a label is applied to someone to simply be a 'programmer', 'artist', 'engineer' or 'designer', then that's what he or she tends to solely focus on.

Titles and disciplines ultimately hamper game development by stopping people from speaking up and poking their noses into other areas. Great games don't happen by accident. The magic 'fun' needs to be found very early on, so that the experience can be crafted, iterated and polished.

Can you name any movies where the crew didn't watch the finished film? Have you ever eaten at a great restaurant where you knew that the chefs have chosen not to eat there? I'm not sure I can, but I can name several games made by people that weren't that interested. And not just the developers, but also in the publishing organisations.

One of my favourite books is Pete Waterman's autobiography *I Wish I Was Me*. As a successful DJ, he knew what records kept people on the dance floor. He'd never made a record before, but he'd played a lot of hits. Later on, when he sold PWL to Warner, he was shocked at how much money they were prepared to throw at upcoming albums without anyone actually listening to what had been recorded.

> ***"One of the things I wish I'd reversed at Criterion would be the trend of specialisation and teams split by discipline."***

UP IS GOOD

I think that one of the guilty secrets of the gaming business has always been that it was largely dominated and run by people who didn't actually play games at all. Ever.

I've heard many classic howlers over the years. I think my personal favourite has to be: "I don't need to play games. I sell what's on the box, not what's in the box". That was from someone who ran a successful global publisher that isn't around anymore. Wonder why?

I suppose the weirdest meeting I ever had was when I was told my game (a first-person shooter that wasn't called *White*) would be a hit because: "at the start you're UP and we all know that UP IS GOOD".

I've also worked with incredibly talented programmers who, after finally getting into the games business, suddenly stop playing altogether. Gaming simply became work, a chore, something to endure. Team sizes, costs and risks got bigger, and sometimes teams are just happiest when it's all over. I always was.

Life's too short to not truly love what you do. There's no point wasting time working on something you don't believe in. And I've been lucky enough to have always been able to be truly invested in what I was working on. Hopefully that showed in some of the software.

So with Three Fields we're starting over, and trying something new. We're not restricted by job titles or PowerPoint presentations, and everyone plays games. I guess that's a start. Oh, and UP IS GOOD. Let's not forget that.

Alex Ward is the co-founder of Three Fields Entertainment. He previously co-founded *Burnout* developer Criterion Games. **www.threefieldsentertainment.com**

//COMMENT: BUSINESS

Microconsoles: growing pains or death throes?

Nick Gibson ponders the struggles this emerging market faces, and whether it can overcome them

YOU MIGHT BE surprised to learn that there were actually three new games consoles launched in 2013. PlayJam's GameStick was thoroughly obscured by the din from Sony and Microsoft's competitive chest thumping.

With microconsole pioneer Ouya also struggling earlier in the year, what was forecast to be "the year of the microconsole" passed with its two leaders proving to be damp and squib-like. Are these just growing pains for a fledgling but high potential market, or the death throes of an ill-conceived and unviable concept?

Ouya's $8.6m Kickstarter performance and $15m VC fundraising had promised so much. But negative reviews, dismal software sales, complaints from developers and staff departures have soured initial enthusiasm. If Ouya, with its relatively laden coffers and strong initial momentum, couldn't crack the market, what hope do GameStick and other "indie" microconsoles have?

MICRO BY NAME

Microconsoles face the same problem all games formats have: to grow an installed base, you need compelling software. But to gain the former you need the latter. Once you have an audience you can start to grow your library, which then stimulates the audience and so on. Nintendo, Sony and Microsoft overcome this by throwing money and resource at strong first and second-party development while securing third-party exclusives. Long-term momentum is always driven by content.

These microconsoles are sold on the value of their open publishing platforms, suitable for re-versioning titles from other devices, but they need more than ports to be commercially compelling. Unwilling or unable to throw money at exclusive content, the microconsoles have therefore had to use price and functionality as their USPs.

History has shown that cheap consoles can sell, but these have always been full consoles at the end of their sales cycles, with content portfolios and brand strength built over many years. As long as price not content is their USP, microconsoles will struggle.

To break out of this rut, Ouya has become hardware agnostic, allowing its platform to work on third-party devices. Rather than gain exclusive content, it is trying to secure the installed base first, piggybacking on others. It's an interesting strategy that initially hinges on the quality of its hardware partners.

> ***"There is a future for microconsoles but it is closer to the traditional console model than firms are able to admit or achieve."***

But, as OnLive proved, even with major partners it would still need a continual flow of high-quality and exclusive content to drive long-term growth; there is little evidence that any current microconsole can achieve this.

So is there any future for microconsoles at all? I believe there is, but it is limited in size and closer to the traditional console model than the existing players are capable of either admitting or achieving. The opportunity is to create a low-priced but powerful, accessible and portable console with high-quality content for TV. It would be aimed at the sort of gamer that picks up a PS3 in its later years as well as less affluent territories where price sensitivity is high. Sony certainly believes it's a viable market. Despite its potential to cannibalise existing console sales, Sony's comparatively well-received Vita TV microconsole is expected to launch in Japan this year, with a library of some 1,300 games.

The Kickstarter for Ouya (above) suggested there was demand for microconsoles, but the reality is exclusive and compelling software is needed to drive growth – something that is generally reserved for traditional consoles

In fact, the microconsole opportunity may only be realised by companies such as Sony, with sufficient financial and development resources to jump-start consumer interest. Amazon is another viable potential entrant in this market with a successful Android app store, a robust reputation for high quality, low-cost consumer devices and, most tellingly, the recent acquisition of 75-man console games developer Double Helix.

Those first to market face a long, slow and difficult journey in a currently microscopic market, but don't give up on the microconsole concept. Wait until the heavyweights get the market started properly.

Nick Gibson is a director at Games Investor Consulting, which provides commercial check-ups, strategy and data to games, media and finance companies.
www.gamesinvestor.com

//EXTRA CONTENT ONLINE

"Decisions don't depend on whether cannibalisation will happen, but on how much it will happen."

Evaluating features for Games as a Service
Xing Wang, ex-Zynga
http://deve1op.net/1gXI2mv

"Gamers are being played, played like a fucking piano, every time you see the word SALE. This is a big psychology trick and we should stop it."

Negative effects of big discounts
Cliff Harris, Positech
http://deve1op.net/1f03kjL

" The huge worlds of MMORPGs are increasingly found in solo RPGs, while more MMORPGs are turning to loftier narrative strategies."

Divergent choices in MMOs
David Osborne, Jagex
http://deve1op.net/PI3IxH

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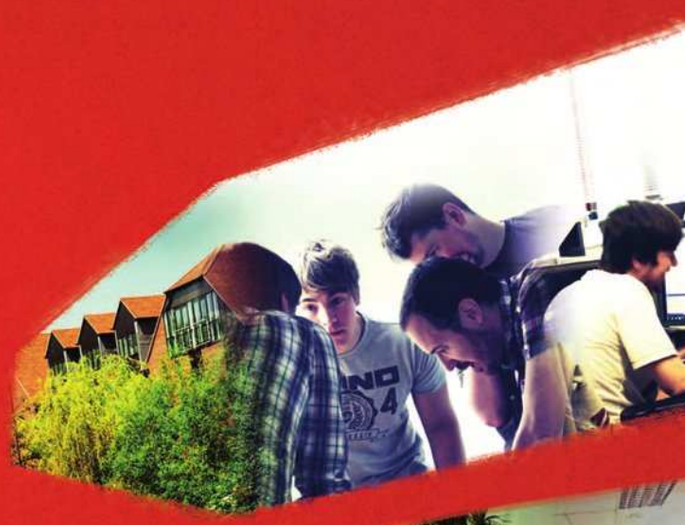

BIRMINGHAM

For over five years, Codemasters Birmingham has been home to the BAFTA Award-winning series of FORMULA ONE games and now hosts the talents of two teams: one crafting new FORMULA ONE experiences for consoles and the other creating mobile games. Whichever team you choose, you'll find colleagues who pride themselves on doing great things in a supportive and innovative environment. Codemasters Birmingham offers a friendly working culture in an open-plan, fully refurbished 6th floor office overlooking the city's entertainment district.

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BETA

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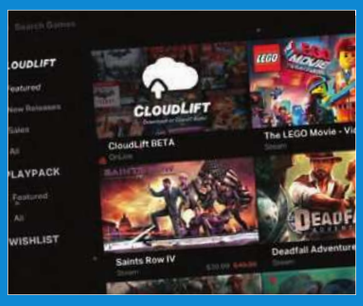
How Sucker Punch brought InFamous to next-gen p16



Up in the clouds with the tech's leaders p19

The challenges of working on cross-gen games p22

Virtual Reality: 'The time is now'

With PlayStation and Facebook both heavily backing VR, the technology is on the cusp of breaking free from the development limbo it has been in for decades. **James Batchelor** investigates why virtual reality has finally got the world's attention

YOU'D BE HARD pressed to miss the recent shock announcement that social networking giant Facebook splashed out $2bn on acquiring Oculus VR, the company that single-handedly transformed our dreams of virtual reality into a physical device currently being worked on by more than 75,000 developers worldwide.

This news came hot on the heels of Sony's GDC revelation that it has been building a virtual reality headset for PlayStation 4, currently codenamed Project Morpheus, as well as persistent rumours that Microsoft has its own VR device on the way.

The contrast couldn't be more striking.

Two years ago, virtual reality was restricted to science fiction and snide Virtual Boy jokes. Today, we find ourselves in a world where VR is not only a reality, but is driving big firms to dedicate significant resources into making the concept into commercial products.

For Dave Ranyard, studio director at Project Morpheus developer SCE London, it's indicative of "how seriously the world is taking virtual reality". For Oculus VR co-founder and VP of product Nate Mitchell, it's a validation of everything his team has spent the last two years working on.

"More developers and more companies investing in virtual reality means more resources put towards games," he tells *Develop*. "It means a bigger audience that's going to get into VR faster

"We've always said that if we're doing it right, it's hard to imagine that other people won't get into this space.

"Think back to before we started Oculus. If someone said that Sony would release a VR headset, I'd have said that's insane. Now, people think that's awesome. I think that's because of all the work we've done, as well as the community at large."

Ranyard, whose studio showed off the Morpheus ocean diving demo *The Deep* at GDC, adds: "There's a crest of a wave here that we can ride. There's a groundswell of excitement around VR, so we need to maintain that momentum and keep moving forward. There's a real positive vibe around VR because it's cool and exciting. When I was at school, the thought of doing this years later would have been my wildest dreams come true."

Oculus co-founder Nate Mitchell (top) and London Studio's Dave Ranyard (bottom) are excited about the future of VR for games and beyond

Epic's Tim Sweeney believes virtual reality is close to its 'iPhone moment', and will be adopted by billions of people around the world

Virtual reality has been tried before, of course. The aforementioned Virtual Boy is just one example of how developers have tried to realise the vision of VR, but its failure is well documented. Why, then, are we finally able to achieve what experts have spent decades working towards?

"For VR, the stars have aligned," says Ranyard. "The mobile market has made loads of improvements around screens, for example. Machines are now powerful enough to render frames quickly, we can achieve the framerates we need, reduce latency and do things in a way that means the brain can't perceive that it's being tricked. The time for virtual reality is now."

REALITY CHECK

Despite working for the pioneer of VR, Mitchell disagrees, pointing to the limited audience that currently exists for the technology: "If you're Activision, EA or Ubisoft, now is not necessarily the time to bet on bringing something like *Assassin's Creed* to virtual reality. Who are you going to sell to: 50,000 Oculus developers?

"But if Sony sells four million headsets and Oculus sells the same, that's something a lot of companies will definitely want to work on."

His comments echo those of Ubisoft, which stated in the wake of Morpheus' unveiling that it would not dedicate development resources to virtual reality until there was a sizeable audience with headsets at home. As inspiring as the prototypes are, to the majority of the world they remain examples, not the finished product.

Oculus' original Kickstarter appeal generated $2.4m and proved there is demand for virtual reality among consumers, but will that translate into an audience when the headset finally arrives on the market?

Ranyard is staunchly optimistic: "Providing we make the right experiences that appeal to the market, then yes, I think there will be supply and demand for VR. It's a disruptive technology: throughout the history of media and entertainment, disruptive technologies have stopped and started, so who's to say exactly how this will play out? But I've seen some incredible experiences in virtual reality, so I do believe that, done right, they can appeal to a large market.

"For me the question is not whether there's an audience, but how long it will take to get to a place where we can cater to it."

SOCIAL REALITY

Reactions to Facebook's acquisition of Oculus were mixed to say the least. While some hailed it as a smart move, others decried it as detrimental to the progress Oculus has made. *Minecraft* creator Notch even canned a VR version of his indie phenomenon.

The most common concern is that Facebook will steer Oculus away from games and towards more casual and social experiences, the likes of which are a far cry from what followers have been waiting for.

But speaking to *Develop* just days before the announcement, Oculus co-founder Nate Mitchell suggested that social experiences may actually be just as well suited to VR as those of hardcore games.

"I think all the social experiences are some of the most fun," he says. "Even some of the really crazy stuff works great: there is a group of people who gets together every week and watches movies in a virtual shared movie theatre in VR. That's pretty cool."

Facebook has bet $2bn on the belief that it can bring VR to the mainstream and make it the ultimate social platform

THE REVOLUTION STARTS HERE

One of the major factors that needs to be addressed, says Mitchell, is content. While plenty of demos have been showcased around the internet, few companies have pledged to make full games for virtual reality – understandable given that Oculus is currently only available to developers.

Regardless of how much money corporations spend on developing the tech of VR, they will also need to make the content if the concept is to prove commercially viable.

"At the moment, there's literally nothing that works on Oculus except for our internal demos," Mitchell explains. "That makes it really hard for you to get excited about spending $300 on a Rift. For virtual reality to be super successful, we really do need great content and great people on the platform.

"I think the indie community is doing an incredible job of innovating and making content that people want to play, and I think a lot of the innovation is going to come from them early on. Because, unlike bigger publishers, they're excited about making Rift games that are innovative."

With the capital of both PlayStation and Facebook behind VR, the more technical barriers between prototype and product will no doubt fall faster than previously expected.

Oculus has now released a second version of its software development kit, which shows remarkable improvements from the first in terms of visual clarity, positional tracking and other aspects that help create the sense of immersion developers and consumers alike crave from virtual reality.

Ever upfront about its aim to perfect the VR experience before release, Oculus says there's still work to be done – but not as much as you might think.

"We're actually very close to locking down a consumer spec right now," Mitchell says. "This is the last development kit before the consumer product – although one of our goals is to have the consumer product double as a dev kit as well. So you can buy a Rift and play with it, or develop with it.

"We're going to get a little feedback from the community on DK2, but it'll have to be fast and furious at the beginning because then we're going to lock down and probably head into launch. We're close."

> ***"I've seen some incredible experiences in VR, so I do believe that, done right, they can appeal to a large market."***
>
> Dave Ranyard, SCE London

But Mitchell stresses that the current version, and even the commercial release, are "just scratching the surface" of VR's possibilities.

"It will get much better from here," he says. "Oculus V1 will be the dawn of VR, but it will get so much better so quickly, just like it has over the last year and a half."

Mitchell's expectations lend credence to comments from Epic Games co-founder Tim Sweeney, who told *Develop* that virtual reality is approaching it's 'iPhone moment'.

"This is a trend that's going to take over the world slowly," he says. "I would compare today's Oculus with the first iPhone. Every new version of it will be more polished and mainstream, helping it appeal to exponentially more people.

"You might look at it today and think it's appealing to hardcore gamers, but that's just the start of the revolution. In ten years, I think there will be VR hardware being worn by billions of people." ■

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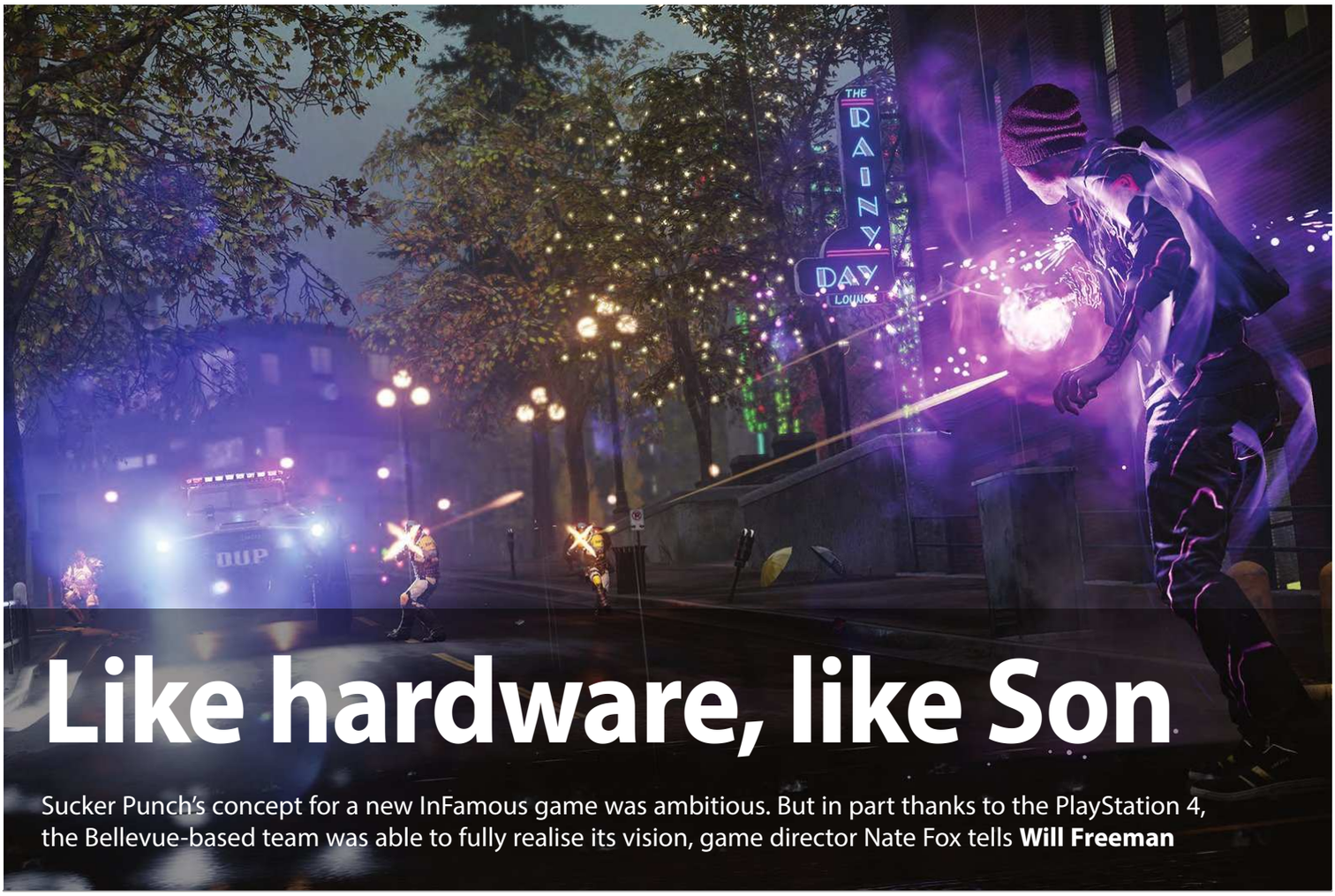

Like hardware, like Son

Sucker Punch's concept for a new InFamous game was ambitious. But in part thanks to the PlayStation 4, the Bellevue-based team was able to fully realise its vision, game director Nate Fox tells **Will Freeman**

InFamous: Second Son's game director Nate Fox (above) says the ease with which devs can harness the power of PS4 was essential to creating a triple-A title with such a large yet detailed world (main and right)

A TEAM OF over 110 staff is a small game development studio.

At least, that's the opinion of Sucker Punch, the team behind *InFamous: Second Son*.

"Today that's not really a large team anymore," asserts Ken Schramm, brand development director at the Bellevue-based outfit. "We're proud of what we've done with that number."

Nate Fox, *Second Son*'s game director, is nodding in approval. He and his team have just seen their latest creation reach the public, and are finding time to reflect on their effort.

To an indie squeezed into a shared office, or an eager start-up kept at full steam by freelancers and contractors, a three-figure desk count might seem overbearingly vast. And in a time when the rise of the small and mid-sized studio is a point of industry fascination, it's easy to be quick to contest Schramm's claim. But he makes a reasoned point in context.

InFamous: Second Son is an ambitious game on a new generation of console hardware. The title's open-world cityscape serves as a sprawling stage for its superhero fantasy, and its rooftops and alleyways are picked out in superb detail and lighting. Building textures glisten with moisture, neon signs flicker authentically, and pools of rainwater capture the scenes above them with faithful clarity.

110 IS THE MAGIC NUMBER

It's certainly a technical achievement, given that 110 developers have crafted a triple-A game for PS4 when other studios reportedly devote 1,000 staff to blockbusters. Perhaps Sucker Punch is that 'small' team.

> ***"We really feel like we've already lapped ourselves in terms of what's possible, simply because the PS4 is easier to develop for."***
>
> Nate Fox, Sucker Punch

"To achieve that kind of a game with this kind of team, you need to really know what you're trying to make from the start," explains Fox. "You have to focus, and know every detail of the story you're trying to tell, and the emotion you're trying to feel. Then, you need to be clear about what rendering effects you want to use, what details of the environment you need and so on, to answer those first questions about what you want your game to be."

Next, insists Fox, directors and lead designers have to get used to saying 'no'.

"You can't be too distracted if you want to get the job done," he continues. "Great ideas will keep coming up, but you have to be prepared to say 'no' to a lot of stuff. You have to stick to your guns the whole way through. That's when it gets tough, because there's so much to say 'no' to. Everything needs to be held up to the lens: does it support the intended experience? We kill our darlings at Sucker Punch. It's not easy; it's necessary."

That's all well and good, but *Second Son* – the third full release in the *InFamous* series – is a game in part designed by its players. At least, they had a significant part to play.

ALL HAIL THE PLAYER

InFamous 2 concluded with a monumental decision for players; one that would change the game world forever. Sucker Punch's senior team watched their customers making that decision, analysing Trophy data before reaching a decision of their own. They would build a sequel upon the popular choice, and so it was that *Second Son* is a release with a new protagonist and a new setting.

In pandering to player behaviour, there's a contradiction to Fox's explicit devotion to sticking to his creative guns. It's a incongruity in his method he recognises, but not one he thinks needs to be the basis for creative conflict.

"As a game designer, I think the most beautiful thing in the world is a playtest with real gamers. Because I might have an opinion about what's cool, and my fellow designers might have an opinion about what's cool, but that's all just theory until we pack all our ideas in together and make it a functional game."

According to Fox, making a game remains a worthwhile pursuit only if you start with utter faith in your vision. "Your idea has to stand on it's own two feet," he asserts.

The direction he takes that vision, and the mechanics and environments through which it plays out, it would appear, are utterly entities of the designers' minds. But exactly how do they function? That is where Fox is prepared to be flexible.

"After all your commitment, you can only really tell how good your ideas are if you hand your game to people who weren't there when you conceived those ideas. Only then do you find out what's cool, what really works and how well you've communicated your game to the player.

"We playtest a lot internally and externally, and act on it. We have to be focused on our vision, but we really listen to our playtesters. It can be difficult, it can feel really personal when it doesn't go your way and is the most dramatic point of the creative process, but it's hugely important. You have to watch, listen and adapt."

That, claims Fox, is how 110 people build a game like *InFamous*.

INFAMOUS PERFORMANCES

But it's also about partnering. With *Second Son,* Sucker Punch has pushed its effort with performance capture beyond anything seen in former *InFamous* games, bringing on board long-serving VFX specialist Digital Domain, which counts on its show reel everything from the movie *Iron Man 3* to games such as Crytek's *Ryse: Son of Rome*.

Working with acting talent, a vast capture space and Digital Domain's technology afforded Fox the opportunity to return to traditional directing; something the art school graduate with a drop of theatre experience embraced with abandon. And his lesson for other developers afforded the same opportunity? Leave the actors to it.

"*InFamous 2* taught me much about directing. *Second Son* proved and expanded on my theory," explains Fox. "Get out of the actors' way. You don't need to be in their way as a director. These people spend all day long in VO and mo-cap booths, and they are great at bringing the character you need out of that. My job, as a representative of the game, is about giving them context; letting them know where a scene fits and what it means in the bigger picture of the game. You need to let them understand what you need from a scene, but the actors are so much better equipped to deliver that than me."

SYSTEM PREFERENCES

Fox and his colleagues also – perhaps unsurprisingly for a studio acquired in 2011 by Sony – attribute much of their achievement to the PS4's oft-promoted developer-friendly guts. It was, says Fox, that very asset that let his technical colleagues accomplish so much in terms of the scope of their project.

"The team at Sucker Punch has been very grateful for the PlayStation 4 having architecture that is, compared to previous platforms, more like that of a PC. That means they can do more with the ideas we have. *Second Son*'s graphics and detail are so much better than what you often see this early in a console's life. We really feel like we've lapped ourselves in terms of what's possible, simply because the PS4 is easier to develop for."

Fox has 15 years at *Sly Cooper* creator Sucker Punch behind him, and has no doubt *InFamous: Second Son* is the team's most ambitious achievement yet. Schramm's point stands: 110 is not a tremendous number with which to make a triple-A, open-world game for a new console. The support of a parent company – which conceived the said console – no doubt helped, but Fox insists that the right partnerships, system architecture, vision and focus were the defining factors.

If he's right, then we may see less teams with four-figure headcounts, and a few more mid-sized studios dedicate teams to ambitious projects on the PlayStation 4. ■

www.suckerpunch.com

CAUGHT IN THE ACTING

TROY BAKER KNOWS what it is to act in games. Anybody who has played *BioShock: Infinite, The Last of Us, Batman: Arkham Asylum, Resident Evil 6, Final Fantasy XIII* or many others will have shared an adventure with him.

The seasoned performer also plays *InFamous: Second Son*'s new protagonist Delsin Rowe, and for him, the experience on the game marked a turning point in development technology's ability to cater for actors.

"Over time, we've all seen technology, graphics, gameplay and so on develop, and I've seen that through the games I've worked on," says Baker. "But here, with the PS4, I've noticed how technology for the first time appears to be serving the story. Sucker Punch made a philosophical decision in how it captured performance; they wanted a more nuanced performance, and brought in actors that could deliver that. It was about delivering more interesting, captivating characters."

But what was most fascinating for Baker was the contrast with delivering characters in TV and film.

"TV and film is very observational for the audience, of course," he states. "In a game, you need to really flesh out each character, but also leave enough room for the player to be in there with you, which takes a particular type of acting. They want to participate in not just the game, but the character also. It's a challenge, but a fantastic one. And as capture hardware becomes less encumbering, it forces you to ground yourself in a character. You really have to go from the gut, and it's quintessentially what you as an actor bring to the character. I think that makes it a little more natural to deliver what the player wants from your performance."

Actor Troy Baker (above) championed Sucker Punch's fresh approach to direction

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Chasing Clouds

Both Microsoft and Sony brag about the power of the cloud, but do the next generation consoles have what it takes to truly achieve the potential of cloud gaming? **James Batchelor** investigates

WHEN MICROSOFT FIRST unveiled the Xbox One, most people lost count of how many times the electronics giant mentioned 'the cloud'. This has been thrown around as a buzzword for many years, and in the past year it has established itself in the lexicon of console games development – but has its presence been limited to just that: talk?

The benefits of cloud-based computing and storage have already made themselves known in mobile and browser games, allowing developers to synchronise user progress and other data across a number of devices. And yet, even with the growing bond between sister platforms such as PS4 and Vita, few titles take full advantage of this in the console space.

Both next generation consoles have been built to utilise cloud processing, but have they already been left behind?

"I do not believe so," says Geomerics COO Chris Doran. "Microsoft has the Azure platform behind Xbox One and Sony has Gaikai behind PS4. These are both large, enterprise cloud services and both parties are dedicating part or all of these to the next generation consoles.

"Microsoft in particular is betting heavily on the cloud in general for the future of the company, so I really don't expect them to fall behind. Quite the opposite, in fact. I expect the next generation of consoles to lead the way in cloud gaming.

"They have both already provided good functionality to link social media into their platforms, and both have the infrastructure in place. They also have strong networks of players through their respective programs, so I don't think you could ask for much more from the platform holders."

Bruce Grove, general manager of one of the pioneering cloud gaming services OnLive, agrees: "In Sony's case, we've seen how it is using the cloud to tackle the problem of backwards compatibility. Both the console platforms are more than capable of taking advantage of cloud gaming's features, and maybe we'll see those applied over time as the customer's expectations change."

> ***"Microsoft is betting heavily on the cloud for its future. I expect the next generation of consoles to lead the way in cloud gaming."***
>
> Chris Doran, Geomerics

OnLive and Gaikai, the latter rebranded as PlayStation Now, are examples of cloud gaming at its most ambitious, offering Netflix-style services in which users play games that are entirely streamed to their screen. It's a model dependant on solid, high-speed connections and, perhaps unsurprisingly, has yet to have the impact early enthusiasts expected.

Doran argues that this is stretching cloud gaming beyond the technical limits that currently exist in today's market: "If you define cloud gaming as cases where the entire game is run and rendered in the cloud, I don't think anyone has done that very well yet, and I'm not convinced it is a good idea."

DATA STORM

It's a lesson that OnLive has learned the hard way, having flirted with bankruptcy back in 2012. The firm recently revamped its offering with CloudLift, enabling users to stream games already purchased on other systems such as Steam. Providing the title is compatible and offers cloud saves, users can continue their progress on smartphones or tablets just as easily as using a PC.

This is more indicative of how cloud gaming can be better used and, crucially, better accepted, says Grove.

"The basics would be to optimise saves and their locations," he says. "Cloud syncing is a simple process and doesn't involve moving huge data packets around. It's also key to think about 'how' players could play their games more; some titles lend themselves to touch-screen control, others depend on a controller or mouse-keyboard setup."

But Born Ready Games' principal engineer Greg Booker warns: "Devs should take care with cloud synchronisation across multiple devices. This is a cool feature when it works, but an irritating one when it causes loss of progress or resources – the worst case being if those resources are purchased in a microtransaction environment.

"I've lost count of the number of mobile and tablet games I've played that become

OnLive's Bruce Grove (top) and Geomeric's Chris Doran (bottom) believe the next-gen consoles will redefine how cloud gaming can be used, with the AI in Titanfall (main) a prime example

PlayStation Now (above), formerly known as Gaikai, is expected to launch later this year, bringing cloud gaming in its most obvious form to next-gen consoles. Meanwhile, OnLive (below right) is still experimenting with the type of services users expect from the cloud

unresponsive or even crash entirely when my data connection is lost or constrained. Often this appears to be simple technical oversights, blocking code that waits for a response from network resources, such as ad providers or leaderboard systems."

CONSOLES AND THE CLOUD

So while Xbox One and PS4 can draw a lot of power from the cloud, developers are urged to use it responsibly.

Unlike smart devices, where an almost permanent connection enhances local computing power, the next-gen console hardware is already advanced enough to handle the heavy tasks like graphics, leaving the cloud for more interesting tasks. Recent release *Titanfall*, for example, uses cloud servers to process the AI, resulting in the frantic and unpredictable battles that are the title's biggest selling point.

"You should use cloud for dealing with large datasets and compute-intensive tasks, with relatively small IO and poor latency," says Doran. "So I would steer clear of putting graphics-related tasks into the cloud. Anything that is tied to the framerate, you want to keep close to the player.

"Where cloud can really come into its own is in tasks like AI and social interaction. I'm still waiting to see the first game that utilises cloud computing to create sophisticated AI agents that behave in an intelligent manner. I can see some really cool possibilities here."

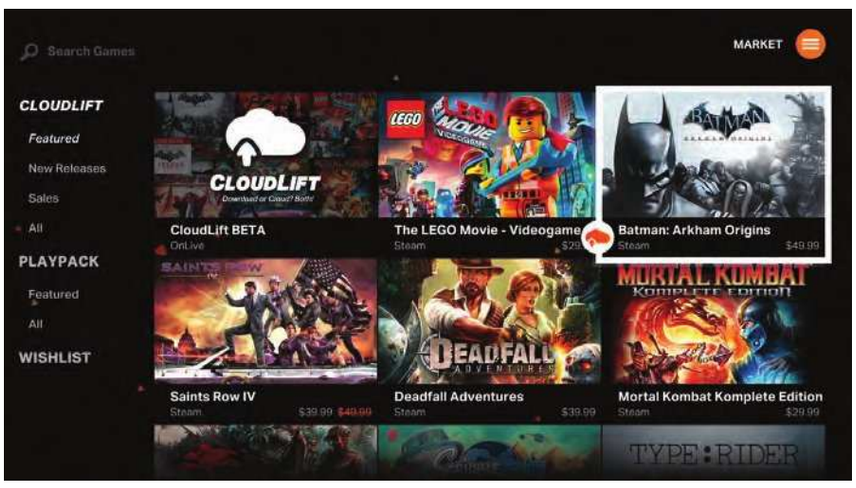
Grove agrees that Xbox One and PS4 could lead to new advances in the technology: "The consoles are approaching cloud gaming differently to us because they're delivering a living room gaming experience. Most console games are designed that way, too. Now that cloud gaming features are in a developer's toolbox, we could see the games themselves leading their adoption."

> ***"The onus is on developers to look at the features of cloud gaming and innovate upon them to have more gamers playing all of the time."***
>
> Bruce Grove, OnLive

Cloud computing is by no means exclusive to gaming. There is a lot developers can learn from other industries, particularly entertainment sectors such as film.

Playcast Media CEO Guy de Beer says: "Content developers should learn from Hollywood and the music industries: the cloud is used to monetise back catalogues, control prices, protect brands and leverage distribution platforms.

"Cloud is critical today for the strategic publishers, because this is the time in the value chain that defines the way the users' dollar will be split. Most of the medium-sized publishers are already monetising their libraries with the cloud today, treating this as money found. Small and indie publishers should look at cloud as an emerging platform worth following, but throttle actual spend against actual available footprint."



SHIFTING FORECASTS

The ultimate aim for cloud gaming pioneers is to create games that can be played anywhere at any time on low-cost hardware with little to no latency. That dream is still many years away from becoming a reality: even in the UK, mobile data coverage and broadband availability is far from consistent, with some areas of the nation still unable to connect to either.

But with more investment being allocated to improving broadband speeds – particularly in the markets where Xbox One or PS4 are available – the tools are in place for studios to finally harness the power of cloud computing to enhance their console games. But the revolution won't happen by itself.

"To a large extent, the onus is on the development community to look at the features of cloud gaming and innovate upon them," says Grove. "The opportunity is to have more gamers playing more of the time. How to incorporate a part or all of cloud gaming's feature set is best left to the creative genius of those making the games."

Doran agrees: "The next step is for developers to embrace the cloud features provided and start making games that really exploit these capabilities. I think we will start to see cloud exploited heavily in some of the headline MMOs due out this year."

It's been five years since Gaikai and OnLive were first announced, and advances in cloud gaming – at least, in the form defined by these two companies – have been minimal. Mobile developers are adept at using the technology to power games that users can access on various devices, but Grove believes we have only scratched the service of what it can bring to games development.

"Market conditions are changing fast and cloud gaming is still in its infancy," he says. "On the one hand, you could reasonably expect the availability to increase in much the same way as mobile phone coverage proliferated. Or you could surmise that games will go the same way as video and music, and our expectations surrounding content being platform or device-locked will change.

"Personally, I see cloud gaming as a technology that connects the dots, adding convenience and mobility. But who's to say that it won't feature in every single touchpoint from secure beta testing? It could address the emerging challenges of marketing and retailing, until players just need to own a wireless controller to access all their games by simply logging in at a screen. I certainly see a lot of this happening before we get entire meals in pill form, or get to drive around in rocket cars." ■

LIFT YOUR GAMES TO THE CLOUD

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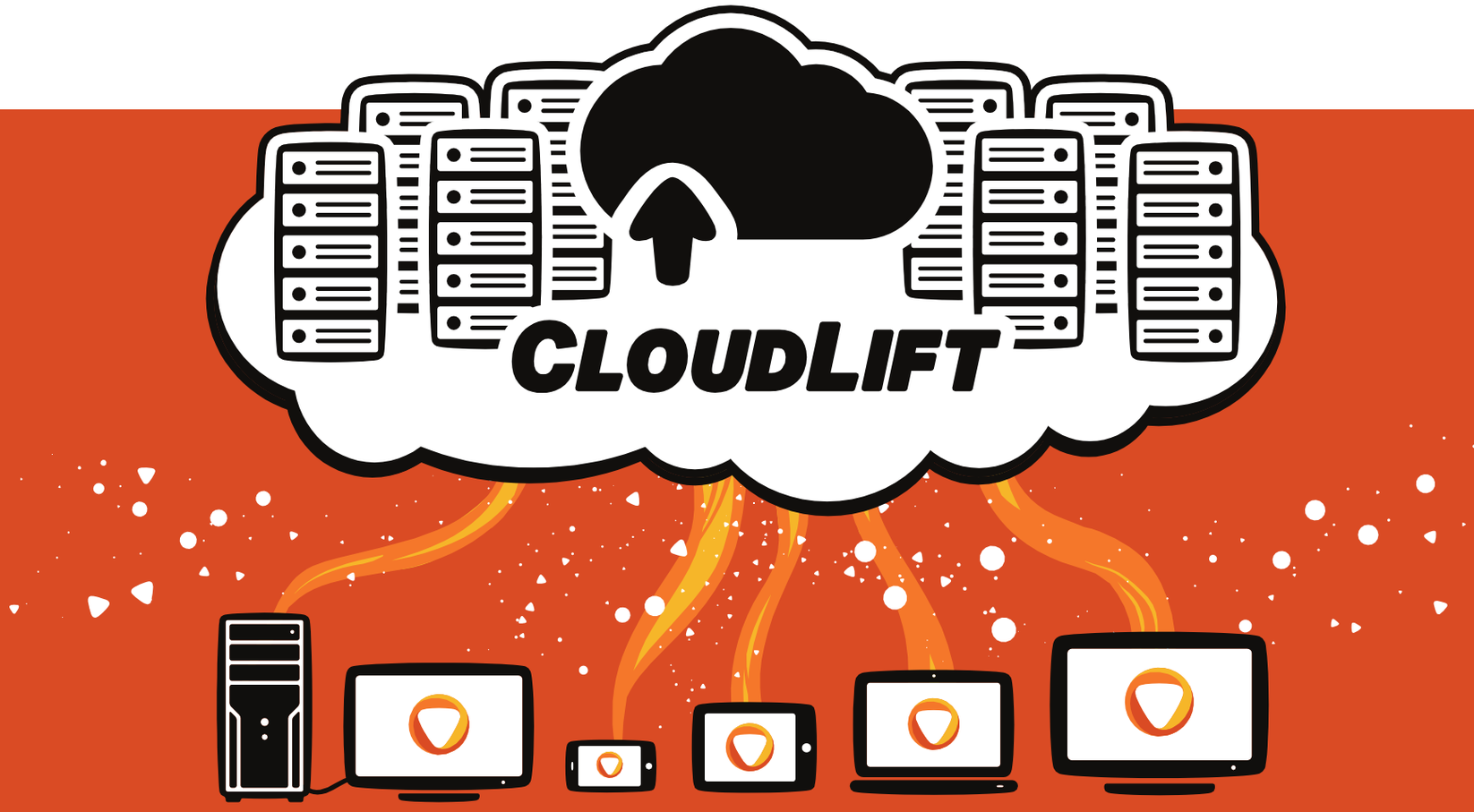

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The cross-gen conundrum

Flagship new-gen titles such as Titanfall, Destiny and Watch Dogs are all coming to the last generation of consoles as well. **Aaron Lee** probes what challenges cross-generation production presents for games studios

Top-to-bottom: Mikkel Thorsted of Press Play and Nicoll Hunt of I Fight Bears

Main: Techland's sinister horror game Dying Light was initially cut from the same cloth as Dead Island, but is now set in an open world and includes scavenging and crafting

AS YOU READ this, *Titanfall* on Xbox 360 is about to be released, a full month after it arrived on its native, current-generation console Xbox One and PC. The team behind the 360 version, Bluepoint Games, has a healthy track record of quality ports behind it, including the *Ico* and *God of War* collections for PS3. But that won't stop critics and players from delivering a harsh verdict if it fails to stack up to its bigger brothers.

"It's not easy. There's so much going on that it is really difficult to move from one console to the other," Abbie Heppe, community manager for Respawn, told our sister brand *MCV* at Titanfall's UK launch party last month. "When you are creating a game covering the current-gen it is never easy to then build it for a console a generation behind."

Heppe's comments reflect some of the tension at the heart of this issue. As we bed into the new era of consoles, the challenges of cross-generation games development are becoming more pronounced.

MIND ON MULTIPLATFORM

Cross-gen games are those being created for at least one current-gen (PS4 or Xbox One) and one last-gen system (PS3, 360). The received wisdom is that, depending on the system, games will either have the same core mechanics with a few aesthetic touches or be stripped of features and left to lag behind their current-gen counterparts.

Techland development director Pawel Zawodny tells *Develop* that multiplatform game creation is a "frame of mind", which is reflected in your work manner.

"In other words, you need to do certain things five times because you have five platforms, simultaneously thinking about all of them as a whole. It means a much longer development time and a requirement for greater team sizes," he says.

> ***"The fact that teams were even able to put out current and next-gen versions of a game at launch was an incredible feat."***
>
> Thomas Puha, Umbra Software

Zawodny and his team are working on the upcoming first-person survival horror game *Dying Light* for PC, PS3, PS4, Xbox One and 360. When it comes to experimenting with what PS4 and Xbox One are capable of, Zawodny says problems start when a game reaches a stage where every new idea is grounded in the capabilities of new systems.

"It makes you impatient to implement bright ideas that will revolutionise the whole industry," he says. "How unfair is that? At some point, you can't go forward if you don't cut something out of the past-gen version. So the challenge isn't about making nice-looking graphics on older hardware. It's actually how to make the next-gen version richer without compromising other ones."

BACK AND FORTH

New consoles are about more than better performance, of course. Players expect devs to make use of the Aladdin's cave of new features available, such as video streaming, cross-platform play and cloud connectivity.

Denmark studio Press Play kept its concessions between versions minimal in bringing *Max: The Curse of Brotherhood* (*see Develop #146*) to both Xbox One and 360.

"Luckily, *Max* is not relying on any of the Xbox One's core features like the new Kinect. For us, the main impact has been added production time in maintaining two versions," explains creative director Mikkel Thorsted.

The process of 'porting' is nowhere near as simple as some assume. He says delivering *Max* to both Xboxes involved bouncing the game back-and-forth between the two.

"First we forward-ported our original 360 version," Thorsted says. "This was pretty straight forward as we didn't have to focus on hardware limitations. Our biggest challenge was getting Unity, the game engine we used for *Max*, to support Xbox One.

"After having done the forward-porting, we back-ported the vastly improved game to 360. Since we had been doing a lot of work with porting already we had a pretty good idea of what was needed to get the game running on 360. First we made a couple of

Top-to-bottom: Pawel Zawodny of Techland and Robert Karp of Mobile Media

Left (clockwise from top left): Destiny, Watch Dogs, Max: The Curse of Brotherhood and Battlefield 4 are all arriving on a plethora of systems

hard but necessary decisions. We chose to lower our framerate from 60 to 30, as well as the resolution to 720p and the texture sizes where possible. We also made all cutscenes into videos instead of in-game renders."

PARTIAL TO PLATFORM-AGNOSTIC TOOLS

Excluding the need for the Press Play team to get their heads around new Xbox One features like hero stats, help apps and DVR, its cross-gen project was relatively hassle-free thanks to the game's foundation in Unity.

Nicoll Hunt of indie developer I Fight Bears says such flexibility is becoming a deciding factor for studios targeting multiple platforms: "One of Unity's greatest strengths is its platform agnostic approach, meaning developers can, to a large degree, not worry so much about the technicalities of porting."

He adds that in the wake of Microsoft ending its support for XNA, the technology for indie games on the 360, indies will largely have to "start from scratch" to bring their 360 games to Xbox One. With complications such as that it seems apt that developers gravitate toward platform-agnostic development game engines and tools.

Even with the difficulties discussed above, the conversation about cross-gen games and development is riddled with pejorative connotations. Just look at the reactions to *Battlefield 4* when it arrived last November in time for Sony and Microsoft's new boxes.

"Having worked with teams who have shipped old and current-gen games at the same time, I feel really bad for them when I see the vitriol online about how the next-gen versions are not 'next-gen enough'," says Thomas Puha, director of developer relations of Umbra Software, which specialises in interactive visibility tools. "The fact that teams were even able to put out current and next-gen versions of a game at launch was an incredible feat. Everything comes online so late with the new consoles that it's a real struggle to get things done."

Of course, the argument from vocal, early adopters is that that "struggle" should be devoted to current-gen development. For instance, *Tom Clancy's The Division* is being made by Ubisoft Massive and Reflections using the studio's specially designed Snowdrop engine.

Rodrigo Cortes, brand art director on *The Division* says by only developing on new-gen consoles and PC, the team is able to maximise and optimise its features to deliver "new levels of experience that only a true next-gen engine can achieve". So is the last generation holding back games development?

Techland senior engine programmer Tomasz Szalkowski doesn't agree, explaining that "engines and other tools will eventually reach the 'tweaked for next-gen' level in an evolutionary way."

Hunt also disagrees, saying it's the astronomical budgets that are holding back the full potential of the new consoles: "As it stands, the cost of building these games, compared to the potential user base, means it often doesn't make financial sense to build exclusively for the latest generation. This will change as tools improve and more players migrate to the latest consoles."

On the other hand, Robert Karp of the Fyzz Facility, maker of *Backgammon Blitz*, says: "Last generation consoles allow developers to be a little more risky and try things that are a bit outside of the box due to the huge install base. While, at the same time, if every developer stopped making games for last-gen consoles and moved onto the new generation, then there'd be many more games."

A NECESSARY STEP

Time, development know-how and possible market reach appear to be the driving forces behind the wave of cross-gen titles currently in production. And while the quality bar for such games, particularly the last-gen versions, will inevitably be debated and scrutinised, developers see this as a process that will only make them better at what they do.

There was a consensus from Techland, Press Play, I Fight Bears, Mobile Media and Umbra that 'porting' games at the start of a new console generation is an important learning curve for developers, helping teams to, as Hunt says, "get a grounding in the new technology without risking the future of the entire studio".

Games development has always involved making tough compromises hinged on commercial or creative demands. The nature of today's hyper-connected audience makes cross-gen development a heavy burden, but one that looks destined to be, as Szalkowski claims, "a necessary step to make future current-gen games even better". ■

CONCESSION CONFESSIONS

FORUM DWELLERS CAN be quick to accuse devs of delivering underwhelming ports without realising the complexes behind their existence. In the case of *Backgammon Blitz* (*pictured below*), Robert Karp of the Fyzz Facility explains that achieving multiplatform asynchronous online play across PS3, PS4 and Vita was the biggest challenge, particularly in terms of testing.

"When you have three main SKUs with different versions for each region, even in a two-player game, that is a lot of combinations," he says. "Fortunately our testing firm did a fantastic job making sure that everything worked and even gave us some great tips on how to improve the user experience."

Nicoll Hunt argues that devs should prioritise making a strong game first: "My approach to cross-gen for my new project is to aim the bulk of it at the lowest common denominator – PS3/360 – and embellish effects and device-specific features where possible. It's more important to make a great game that plays equally well on all platforms than trying to shoehorn in platform-specific features that may not add to the overall game."

Designing games for the multi-screen world

Online casual games firm Spil Games has been touting its HTML5 ventures for months now, but there's far more involved than just adopting a new programming language. CEO Erik Goossens tells **James Batchelor** how the tech is helping his firm – and its development partners – conquer an increasingly fragmented games market

Spil Games' boss Erik Goossens (above) says his firm has invested heavily in teaching developers how to create games for a world split across multiple screens, such as tablets and smartphones (main)

THE MOTHER OF Spil Games' CEO Erik Goossens has a problem.

Like many people nowadays, she spends her time on casual games portals while browsing the web; sites like Zibbo, the portal owned by her son's firm that targets mostly women over 30 with word and puzzle games.

And, like many people nowadays, she also enjoys playing these games on her tablet – except that some of them aren't available on app stores. Even if she accesses Zibbo or similar sites through her tablet's browser, the games are never guaranteed to work.

For Mrs Goossens' son, it's a source of both frustration and inspiration: "My mum just doesn't get it. I try to explain the differences between HTML5, Unity and Flash and so forth, but she just looks at me and says, 'Son, I don't care about your HTML-whatever – just make it work. I want to play games'.

> ***"My mum just doesn't get it. I try to explain the differences between HTML5, Unity and Flash, but she just wants her games to work."***
>
> Erik Goossens, Spil Games

"So that's what we want to deliver: a solution to the problem of multi-screen game delivery."

Ten years ago, games were limited to four distinct screens: TVs for consoles, gaming handhelds, monitors on home computers and laptops and primitive phone displays.

But now any given living room can have multiple varieties of numerous screens. While the portals to console and handheld games remain unchanged, PCs now hook up to those large-screen TVs with ventures such as Valve's Steam Machines. Smart TVs, while their penetration remains low, offer another potential platform for games. And then, of course, there are smartphones and tablets.

SCREEN DIGEST

All of these are intrinsically different systems, but the casual gamer – like Goossens' mother – has no understanding of the technical barriers preventing them playing their favourite titles on any device. Since that's unlikely to change, Spil Games has taken matters into its own hands.

"The two biggest things we have to solve is the fragmentation created by a multi-screen environment, and how the hell you're going to monetise across those screens," explains

Goossens. "Because we're not going to change our audience overnight. We've got a huge audience playing casual games. They don't necessarily spend much money on them, but that's the audience we cater to. We've been catering to it for ten years, and we'll continue up to do so for the next ten years."

To solve that fragmentation, Spil Games has invested heavily in developing games for HTML5. The programming language allows games to be played in browsers on any device, opening them to a far wider audience than something like Flash.

Back in September, the firm announced it was spending $5m on helping developers make HTML5 games, with plans to release 1,200 titles this year that work across Spil's three primary screens: tablet, smartphone and desktop. Goossens plans to release 200 of the most popular of these on app stores.

While Spil has been banging the HTML5 drum for several months, there are devs out there who are sceptical about the benefits of using it. But the exec says the casual games firm stands by its faith in the format.

"We realise there's a negative connotation around HTML5 in games, but for us it works, here and now," says Goossens. "We are delivering HTML5 games right now to the market that our users like as much or more than they used to love Flash games."

MULTI-SCREEN THINKING

However, even with a flexible technology like HTML5, there is the issue of screen size. Designing a game that works on desktops and tablets isn't too much of a chore since the screen aspect ratios are similar; it's merely a case of scaling up and down. But throw smaller smartphone displays into the mix, plus the addition of touch inputs for both phones and tablets, and game design becomes more complicated.

Spil Games' solution is to gather members of its 30 partner developers every quarter and spend a couple of days highlighting and solving any issues they have with how multi-screen games are built and played.

"We have been developing guidelines over the past year: UI rules and so on," explains Goossens. "For example, when you have a mouse-controlled game, the menu and interactions are typically at the top of the screen, but on a tablet, your thumbs are at the bottom of the screen so everything has to be moved down.

"As another example, there's not enough real estate on a tablet screen for the menu so you need an area that triggers it to flow in, but that means you can't use that area for other things. Those kind of guidelines have been developed over the past 12 months, and we've trained the studios we work with on how to use them, why they were there and the things developers should think about.

"By now, most of our developers make games for tablets first. Then they scale up to a PC and scale down to a smartphone. The tablet is the biggest audience for us. That's where the most time spent on games is moving to: over a wi-fi connection at home. That's our sweet spot."

Any code developed that demonstrates these guidelines is uploaded to a central server so other studios can learn from it. And then there's that $5m dedicated to training studios in HTML5. It's a huge investment, Goossens admits, but a necessary one.

"A lot of developers need capital to switch from working in Flash to HTML5; they need to build new libraries and train their teams, and that takes time. We're actually spending more money and time on games than we should, but we do it to accommodate this transition for developers that we like and care about," says Goossens.

"And it's not because we're philanthropists and we're so nice and we love these guys; it's because we want to build a business out of this so we need to help the industry get to that level."

Of course, HTML5 is not the only way to ensure games work across any device. With the growing accessibility of technologies like Unity, the Spil Games boss says devs still need to think carefully about what they invest in.

"If you're trying to achieve what Supercell has done with *Clash of Clans*, HTML5 sucks," says Goossens. "If you're trying to build a game for the consoles, it's really a bad technology to do that with.

> ***"Today, we have a massive audience that's platform-agnostic. We believe we need to be where our user is, rather than the other way around."***
>
> Erik Goossens, Spil Games

"But if you want to build games for a casual audience that usually spent 20 to 40 minutes interacting with you in a session, and play through three of four games in that period, it's great. It works. Companies like ourselves can use HTML5 to deliver the quality of games that we need today."

CASUAL CONNECTIONS

It's not just Spil Games that will benefit from multi-screen titles, Goossens argues; the entire industry needs to account for the fact that casual gamers are using multiple devices in their daily lives. Particularly given how big that audience has become.

"The fact is there are 1.2bn people playing games – we've never had an audience larger than that before," he says.

"Yes, sure, they do it over three screens, which leads to platform fragmentation issues, but we'll solve that. That's a bunch of people spending a shitload of time playing our games every day."

But as Nintendo and other firms have found, the casual or mainstream audience can be fickle. In 2006 and 2007, they were all playing Wii. Later, there were all on Facebook enjoying *FarmVille*. Then they were on smartphones playing *Angry Birds*, and now they're migrating to tablets. How can developers keep up with an audience that is constantly on the move when no one can predict their next preferred platform?

"I don't think they actually move," argues Goossens. "I think it's just the addition of new platforms. My mum, again, still plays a downloadable version of *Bookworm* every now and then. She also goes to Facebook from time to time, where she plays Zynga games because she likes the farming mechanic. And now she plays *Candy Crush* on a tablet. And then she also comes to our sites sometimes, playing Mahjong titles.

"Ten years ago, we had a smaller audience that was more dedicated to certain platforms. Now it's a more massive audience that is platform-agnostic and that's why we believe in the multi-screen approach. We believe we need to be where our user is, rather than the other way around." ■

Aspects as simple as UI and control layouts can make a massive difference when developing a game that will work across tablets, smartphones and PC displays (above)

Welcome to the start-up capital of the world

With a plethora of new companies attracing big investment in games, **Craig Chapple** investigates why Finland has become such a hotbed for new companies breaking into the industry and just what impact it has had on the sector

The iconic Helsinki Cathedral (main) is at the heart of the Finnish capital, a city that is home to a host of promising new games studios

FINLAND IS ONE of gaming's fastest growing regions, spawning a plethora of successful start-ups in recent years that have gone on to become the biggest names in the industry.

Take recent *Develop* cover star Supercell, for example: set up back in 2010, the studio's flagship titles *Clash of Clans* and *Hay Day* are consistently atop the App Store and Google Play charts, success that convinced Japanese telecoms firm Softbank and publisher GungHo Entertainment to fork out $1.5bn for a 51 per cent stake in the company.

GETTING SERIOUS

But that's not the only new studio attracting attention. Next Games just netted $6m in investment while PlayRaven, making strategy title *Spymaster*, secured £2.3m in January. Other well-known start-ups include Grand Cru and Seriously, both tipped for big things.

But the large sums of money raised by these new studios aren't the only interesting

numbers coming out of the Finnish game industry thanks to this rise of new start-ups. In Q1 of 2014, the Finnish games industry consisted of 200 companies, mostly in the mobile scene. Over 50 per cent of these were established during just the last couple of years.

The number of people employed has also risen, and is currently estimated to be at 2,400 and rising, up 600 since 2012. In total , turnover for the Finnish sector in 2013 was said to have reached €900 million. This is nearly four times the industry's €250 million turnover in 2012.

So why is Finland attracting so many start-ups, and why are people investing now?

"There are three reasons in my mind," says Seriously CEO Andrew Stalbow. "Firstly Finland has been at the forefront of thinking about mobile services for the last two decades, so it was well positioned once the iPhone and Android came along to start building products that were mobile first.

"It's a very collaborative culture and there's a feeling among companies and entrepreneurs that 'all boats rise' by sharing knowledge and working together. This is a real advantage.

"Thirdly, the demo scene was a catalyst for all of this – I think you can trace a lot of the foundations for the success the country is having in mobile games back to that."

Next Games' head of marketing and communications Saara Bergstrom adds: "Finland has an interesting mix of

Finland's top start-up talent top-to-bottom: Seriously CEO Andrew Stalbow and CCO Petri Järvilehto, PlayRaven's Lasse Seppänen and Next Games' Saara Bergstrom

Main image: PlayRaven's Spymaster game, which has helped the studio attract £2.3m in funding

engineering talent and creative innovation, and this combination makes Finland and the Nordics in general quite unique."

ENTREPRENEURIAL CULTURE

While the mix of talent and readiness for the mobile gaming boom may be key catalysts for such a vibrant start-up scene, and lets not forget the talent from giants such as *Angry Birds* developer Rovio spawning a number of these new start-ups, Finland is also full to the brim with support structures to ensure entrepreneurs have a platform for success.

Seriously, Next Games and PlayRaven have all received funding from the Finnish Funding Agency for Innovation, Tekes. The organisation has an annual budget of €600m, and has brought €65m worth of funding to the games industry specifically. So far, more than 100 games firms have received funding by Tekes.

Government agency Invest in Finland meanwhile promotes foreign investment in the industry and local networks such as IGDA and Neogames help promote collaboration and educate companies on the business side of things. The country also has generous corporate tax rates and is home to a world-renowned education system.

"We've had tremendous public support from several sources," states PlayRaven CEO Lasse Seppänen.

"The biggest one is the National Technology Agency – Tekes – which gave us an R&D grant of €100,000 for the development of *Spymaster*. The Nordic Game Program also granted us €40,000. We have also received smaller grants from the Finnish audiovisual culture fund AVEK and the ELY center which is a regional trade and industry support entity. Another local entity Forum Virium has also granted us subsidised consultant days for things such as lawyer expenses. Of course it's important to note that we also had to have a similar amount of private capital to be eligible for these grants.

"All in all these public support instruments were fantastic 'bridge' financing for PlayRaven because we were able to create an almost complete game and then pitch to VCs and private investors. Public support definitely had a big impact in negotiating the $2.3m seed round we just closed."

> ***"If the whole society – media, politicians and common people – becomes more positive about new start-ups, it raises the chances of success greatly."***
>
> Lasse Seppänen, PlayRaven

This isn't to say things are easy, of course. As Bergstrom says, even with the support structures in place, Finland has still struggled to generate a lot of venture capital originating from within.

"In the past this was even a bigger challenge for start-ups than now that we have had success stories like Supercell and Rovio who have done a lot of the pioneering work of putting Finland on the radar for foreign investors," she says.

TOO MANY COOKS?

The number of people joining games continues to rise in Finland. In 2008 the number of people in the industry stood at 1,147. Today, in part thanks to the likes of Supercell and Rovio, the latter of which employs more than 800 staff, this stands at 2,400, and that number is expected to rise.

But while all are unanimous in their belief that Finland will continue to nurture dozens of start-ups each year, Seriously chief creative office Petri Järvilehto says it will get harder for those new to games looking to break in.

"I think we'll see a lot more games start-ups for sure. The barriers to create a game are very low," he says, but warns: "It's going to get harder for some of the newer start-ups that have talent but limited experience to compete with the marketing resources of more established mobile games companies, so I expect to start seeing more consolidation."

LESSONS FROM THE NORDS

So what can the rest of the world learn from Finland? Seppänen says countries need to create an entire ecosystem that supports games and will help drive new studios forward.

"If the whole society – media, politicians and common people – becomes more positive about new start-ups, it raises the chances of success greatly," he explains.

Järvilehto adds: "It's important that starting a business is seen as an option for people's careers that ranks alongside joining a more established company," he states.

There are few signs that Finland's start-up boom is set to stop, and clearly the rest of the world could learn a lot, not just on the games development side, but in how to foster that entrepreneurial spirit in the games industry.

"Right now the boom in start-ups is continuing," states Seppänen. "There are more touch-screen devices than television sets on the planet. Touch-based mobile is the new mass medium that has taken over and on this kind of scale there remain many, many gamer segments that are not served by the current offering in the digital stores.

"That means there are many opportunities for bold new games entrepreneurs. This is just the beginning." ■

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Your monthly guide to the best career opportunities in games development worldwide

London studio Improbable snaps up more staff p30

Arkane's president on what the studio can offer you p31

Essential jobs advice from Creative Assembly p32

Meet Foundry 42's star citizens

A new studio has been formed in the UK to work on the biggest crowdfunded game IP in history: space trading and combat sim Star Citizen. And it's hiring

The Foundry 42 team has been formed by staff from TT Fusion and Crytek, among others

by Craig Chapple

ONE OF THE UK's newest studios Foundry 42 is quickly staffing up its Cheshire base to work on one of the most talked about games now in development, *Star Citizen*.

The new developer was formed late last year and is working on the ambitious multiplayer title that has so far raised more than $40 million in crowdfunding, and is taking the lead on the single-player campaign, Squadron 42.

"The UK has got a huge amount of history," Foundry 42 studio director Erin Roberts tells *Develop*.

"Development in the UK is very strong and the quality is really strong as well. And also where we are in the North West there's a good bunch of people you can pull on."

Since the start of February, the studio has brought in eight employees. This includes former Crytek level designer Michael Barclay as lead game designer, ex-TT Fusion lead environment artist Matthew Johns as senior 3D artist and lead programmer Jens Lind, who also previously worked at TT Fusion.

Robbie Elms, Ed Marsland and Luke Pressley have joined as designers while Simon Davies has joined as a programmer and Philip Howlett has been recruited as environment artist.

> ***"Development in the UK is very strong and the quality is really strong as well."***
>
> Erin Roberts, Foundry 42

Foundry 42's staff count currently sits at 36, but at the time of writing the developer is set to bring in more employees taking the staff count up to 42, with more vacancies available in art and programming roles.

Roberts says the headcount could go up to a total of 50 staff, but is reticent to go much higher for fear of destroying the close-knit studio culture he is trying to forge.

"50 is almost that magic number where everybody knows everybody, and everyone communicates well in an area which is small enough to make communication very easy. People can just walk round and talk to each other, and not across different floors and different areas of the building. So you have a very tight-knit group and quick turnaround on stuff," Roberts explains.

The studio is also set to stay around for the long term, even once development is 'finished' on the single-player experience for the space sim. Roberts says there are plans to keep expanding the *Star Citizen* universe regularly with battles and new campaigns, and there's still a huge amount to do over the next few years.

"The *Star Citizen* plan is it's a ten-year plan," he states. "As far as we're concerned we're obviously creating Squadron 42, and we're supporting the actual persistent universe as well in other ways. Then after Squadron 42 is done we're going to create other scenarios."

Cloud Imperium Games, which Foundry 42 is part of, has studios based across the world, including in Austin, Texas and Santa Monica. ■

www.cloudimperiumgames.com

MOVERS AND SHAKERS

This month: Improbable, Bigpoint, Valve, Jagex and UKIE

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Video Games Recruitment

START-UP NABS TALENT FROM UBISOFT

IMPROBABLE London-based studio Improbable is continuing its recruitment drive with the appointment of technical art director **KAJFA TAM** and sound designer **LEWIS JAMES**.

Tam's most recent work includes *The Division* and *Assassin's Creed: Revelations* at Ubisoft Massive.

James has directed the audio on a number of triple-A games, including *Burnout Revenge*, *Burnout Paradise*, *Army of Two: The 40th Day* and most recently PlayStation 4 launch title *Killzone: Shadow Fall*.

Both will work on Improbable's yet to be announced projects, which is being fashioned by "unique approach and bespoke technology", the studio said in a statement.

Tam said: "I've spent many years within the games industry working with multiple technologies and engines, but the unique offerings here at Improbable are unlike anything I've ever seen before.

"I'm very excited and humbled that I've been given this opportunity and together I believe this team can help shape the future of Improbable."

James said: "I'm really looking forward to seeing what we can achieve at Improbable. With the team and the mind-blowing possibilities for sound design in the new systems being created here, I feel we have the chance of crafting some new, positive and exciting things with gaming."

Improbable CEO Herman Narula said talented people from all over the world, like Tam and James, will turn "the ground-breaking concepts we're working on into reality".

In January, the London start-up hired Lionhead's Si Jaques to head up its animation team and freelance artist Calum Alexander Watt. Also on board is Crytek UK's Nick Button-Brown as studio head with a team of over 25 staff now at the studio.

Kajfa Tam (above left) and Lewis James

BIGPOINT Hamburg-based online developer Bigpoint has hired **CRAIG SCOTT** as its new lead designer. His first task will be leading design efforts on a new game.

Scott has worked at studios including CCP and Realtime Worlds, and has been in the industry for more than 14 years. On *Eve Online*, he started out designing the character creation, and quickly moved up to manage the game's entire design team.

"I am happy to be with Bigpoint now," said Scott. "It has major experience in the future sector of free-to-play, online games. Furthermore, I expect to have much space for trying new things, which is a premise for making really innovative games and which, of course, means a lot of fun for both the teams and the users."

VALVE Indie game artist **ROBERT BRISCOE**, famed for his work on The Chinese Room's *Dear Esther*, has joined Valve as a lead environment artist.

The UK indie said he wishes to take a break from his "solitary life" and the Seattle company behind *Half-Life* is one he has "long admired".

Briscoe told *Develop*: "I'm really looking forward to joining the team at Valve, after feeling increasingly isolated being a solo indie for some time. I'm really just looking forward to being around other devs again.

"I also think it will be nice to once again return my focus to the singular area I'm most passionate about: environment art."

Briscoe worked at DICE before joining The Chinese Room. He is now finishing a Unity version of *Dear Esther*.

JAGEX Jagex has promoted **SAM FORREST** to the newly created position of VP of communications.

In his new role, Forrest will oversee all aspects of Jagex's global PR, video production, marketing and events.

Forrest joined Jagex in 2012 as director of PR, and has more than 19 years of experience in the sector working for THQ, SCi and Activision.

"The past 18 months have seen the PR team go from strength to strength," said Forrest. "The in-house team has doubled in size and we've recruited a global network to support Jagex's games and promote the studio properly for the first time. 2014 is key for us with the launch of *Transformers Universe*, and I relish the challenge that comes with this new role."

UKIE Games trade body UKIE has promoted **DANIEL WOOD** to the position of COO. His new post will see him take on more of a leadership role.

Wood joined UKIE in September 2010, shortly after its rebrand from ELSPA, and has played a major role in growing the trade body. "It's been amazing to be part of the team that has seen UKIE grow so much over the last three years and I now can't wait to get stuck in to this new role," he said.

UKIE CEO Jo Twist added: "Dan's expertise, experience and enthusiasm is going to be invaluable as he takes more of a leadership role in the organisation; making sure we are representing and servicing our members and our sector from the grassroots to the highest level."

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SIX-SECOND STUDIO SPOTLIGHT

Dan Pinchbeck and Jessica Curry of **The Chinese Room** started out modding and working on experimental games in 2007 for academic research. By 2012, they released their first commerical game.

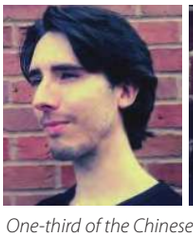
Dear Esther secured the studio's future and won dozens of awards in the process, including the 2012 Develop Award for Use of Narrative.

The Chinese Room now consists of 12 people, including (*far right, clockwise from top left*) creative director Pinchbeck, co-director and composer Curry, lead designer Andrew Crawshaw and audio designer Adam Hay.

Half the team are based in Brighton and the other half work remotely across the UK and Belgium.

First-person experiences are its speciality, and the studio is currently working on PS4 exclusive, *Everybody's Gone to the Rapture (left)*.

"We've got a fair bit of production left on our current title, but we're already kicking around ideas for the game after that. We'd like to return to multi-platform," says Pinchbeck.



One-third of the Chinese Room team

www.thechineseroom.co.uk

RECRUITER **HOT** SEAT

If Dishonored struck a chord with you, Arkane Studios' president **Raphael Colantonio** invites you to get in touch

BIO
Name: Raphael Colantonio
Title: President
Developer: Arkane Studios
www.arkane-studios.com
"We always try to set the bar higher every time we bring another member on the team."
Raphael Colantonio, Arkane

What differentiates Arkane Studios from other developers?
There are a few things that are unique to Arkane. We have a real passion for making first-person, immersive sim games. We also have an interesting blend of two cultures, with a French team and an American team who work and collaborate together. Working with us, you might even get to do some international travelling. It happens.

How many staff are you currently looking to take on?
We are currently looking to add roughly 30 people. We are expanding every department so we are looking to add people to the art, animation, programming and level design teams. We like to hire folks with a range of industry experience – from fresh talent all the way up to the most senior of levels.

What perks are available to those working at the studio?
We have a small, close-knit team, which means everyone has a level of ownership. That also means that people have a direct impact on game content decisions.

One of the greatest benefits of working on the Arkane team is the level of talent here – we always try to set the bar higher every time we bring another member on the team. It's really important to us to be constantly learning and growing, and one way to ensure that happens is to surround yourself with folks who are striving for better, bigger and more challenging work.

We're lucky to be a part of the global ZeniMax family, which affords us a great benefits package and lots of vacation time, not to mention the ability to meet with and bounce ideas off all of the other studios under the ZeniMax umbrella.

What should aspiring devs do with their CV to get to an interview?
Make sure to tailor your resume to the role you're interested in. We get a high volume of submissions for each position, so show the recruiter reviewing yours why you're a top contender for the job.

Don't be afraid to show your passion in your cover letter or résumé. If you're a game designer who has played through one of our games multiple times or an artist who has spent months working on a mod, tell us about it. We're all really passionate about our work here and knowing how much you want to be an Arkanite can help.

It seems like a no-brainer, but make sure to check your résumé or cover letter for obvious grammatical and spelling errors, as well as who you're talking to. You'd be surprised how often we get résumés addressed to other studios or referencing other games simply because an applicant has forgotten to edit their last cover letter before sending it to us.

Who is the best interviewee you have ever had and how did they impress you?
We love it when candidates express their passion for the same games we like. This usually sets us up on the right foot.

We then look carefully at the skill of the interviewee, and their ability to be clear and succinct when communicating. Once we interviewed a candidate for a tech artist position who was a great communicator. He was someone everyone liked.

Then, he showed us some modelling, animation and rigging work, and we thought, 'Okay, this person is awesome. He can do much more than just his job'. We were obviously really impressed.

If your studio has recruited talent internationally, what was the process like for you and for the applicant?
We are dedicated to finding the best talent – no matter where they are in the world. We absolutely do consider international applicants, although the hiring process can take a bit longer when international relocation or visa sponsorship is involved.

What advice would you give jobseekers for a successful interview at Arkane?
Prepare, prepare, prepare. Make sure you've researched the studio and the project, if possible. Research the folks you'll be meeting with if you're given an itinerary ahead of time.

If you're nervous in interview situations, practice potential questions and answers with a friend before you go. You want to be ready to talk about the work you're most proud of, big wins and challenges from past roles, and what you're most excited to work on in your next position in games.

Don't be late. If you're not sure where the studio is, drive by the day before your interview to make sure you know where you're going on the big day.

Why should developers join a studio such as Arkane when independent development and self-publishing have become so much more accessible?
It really depends on what kind of game they are interested in making. I love indie development; it's incredibly inspiring and very creative but it's not for everyone.

As part of our development team, with the publishing power of Bethesda behind us, you'll have the chance to create fantastic, immersive worlds on next generation consoles for fans to enjoy. There's nothing better than the accomplishment of shipping an award-winning game.

GET THAT JOB

Development specialists offer advice on how you can bag that career leap

THIS MONTH: HEAD OF GAMES DESIGN

TAG GAMES' RICHARD 'Brek' Carr discusses the key skills needed for his role in game design at this growing Dundee-based outfit.

What is your job role?
Creative vision holder and practical implementer, or overseer of all aspects of design for Tag Games. Working across multiple projects, I maintain design standards, mentor recruits and ensure all games meet the client's or Tag's high standards and goals. I'm involved in pitching, design documentation, competitive analysis, client liaising, team leading, monetisation design, content design, UX design, service design… I'm kind of like the spider in the middle of a web.

How would someone become head of games design?
Start as a designer or level designer. Constantly seek to expand your knowledge and design skills. Understand your audience you are making the game for. Be thorough and considered in your work. Research,

> ***"Explore the best possible design solutions for the problems you or the player identify."***
> Richard Carr, Tag Games

explore and identify the best possible design solutions for the problems you, the client or the players identify.

Be passionate about a vision. Strive to create a team that works well together. Communicate what you want for the game and why you want it. Teach and champion good design within your team to allow you to focus on the tougher design problems. Listen to your team members.

Do that and you are more likely to produce good games on time and budget. It's about reliability.

What do you look for when hiring a new head of games design?
Methodical, practical understanding of all aspects of design and their interconnectedness to create great products.

Why choose to follow a career in your field?
Designers, and the rest of the team, are the digital craftsmen that give form to some of the most significant and wondrous pieces of entertainment of this age. We get to make something of beauty, we get to leave a mark on the world, we get to make people feel.
www.tag-games.com

If you've got job advice to share, email **Aaron.Lee@intentmedia.co.uk**

Employee HOT SEAT

Mark Radcliffe shares how he joined Creative Assembly and offers must-know insight into its hiring process

What do you do at your studio?
I am the lead environment artist on *Alien: Isolation*. My main responsibility is to provide day-to-day direction for the environment team. I also collaborate with other art teams to ensure the environments match the creative vision, while staying in budget and also providing great gameplay opportunities.

I have always been a big *Alien* fan and this is pretty much my dream project. I kid you not: right now my desktop is a render of our ten-foot Alien, my desk itself has *Alien* figures on it and I'm wearing an *Alien* T-shirt.

How did you get your current job?
I actually contacted CA while there were no jobs on offer. I sound like a suck up, but I owned pretty much every *Total War* game they made and really just sent an email saying I would like the opportunity to work with them. I didn't know about *Alien: Isolation* at all at that time.

> ***"The best perk is to work alongside some of the most talented creative people in the UK."***
> Mark Radcliffe, CA

Anyhow, a few weeks went by and I got a phone call from their recruiter out of the blue saying they had a lead environment position available and would I come for an interview. Too right I would.

Name: Mark Radcliffe
Title: Lead Environment Artist
Developer: Creative Assembly
www.creative-assembly.com

What perks are available to those working at Creative Assembly?
The best perk I would say is to work alongside some of the most talented creative people in the country. Oh, sure, I have just finished my contemporary Japanese late night meal (can I say it was Wagamamas?) and we have a pool table, table tennis, open-plan office in a nice town, ice cream Wednesdays and a seemingly endless supply of birthday cakes but that's by-the-by.

What is the recruitment process like at your studio?
The recruitment process here is rigorous. For two recent contract positions I reviewed about 130 portfolios. Of those a shortlist of around 15 was created and from that we interviewed only six. We tend to be critical on portfolios and only interview the very best.

What was your own interview like?
It seemed to go very well. I put together a presentation on the environments in the *Alien* movie, how they could be applied to games, how the main themes could be reinforced and techniques to make it pretty. Comparing it to other interviews, well, frankly most of them have been quite samey, and to be honest I think they liked how prepared I was.

Describe what the atmosphere is like at your studio.
We are in a very busy period right now, but it's pretty relaxed to be honest. There's a review going on behind me today and some good gameplay tweaks are being hammered out. Everyone is focused and works hard, but we still find time to have a laugh, get down the pub and still see our partners.

And do you feel you have an impact?
I definitely feel I do have an impact, but then everyone here does. That's what I love about the studio: everyone adds their own unique style.

EA Tiburon

Orlando, Florida, USA
www.easports.com/careers/orlando

EA Tiburon is home to the dev teams behind sports juggernauts such as *Madden NFL*, *PGA Tour* and *NBA Jam*. The studio houses nearly 700 staff, has its own lakefront view and is surrounded by greenery. Inside, there's a gourmet café, an entertainment room and even a ball pit for those who are still big kids at heart.

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Aaron.Lee@intentmedia.co.uk

NEW ON #DEVELOPJOBS

Our pick of new job listings from Develop's website

GRAPHICS PROGRAMMER

Employer: Ubisoft Reflections
Category: Programmers
Salary: Competitive + Bonus + Benefits
Type: Contract
Location: North East, UK

Ubisoft is hiring a fixed-term graphics programmer to work with its teams in Newcastle and Bordeaux. The successful candidate will work within a collaborative environment implementing game and engine features. Significant PS3 graphics and renderer programming experience is required.

Find out more and apply at: http://bit.ly/1dNayXO

UI PROGRAMMER

Employer: Crytek UK
Category: Engineering
Salary: DoE
Type: Permanent
Location: Nottingham, UK

Crytek UK is looking for a self-driven and motivated software engineer to join its user interface team, which is working on a number of triple-A titles for next-gen hardware. The role requires someone who understands the importance of communicating the right information in an accessible way.

Find out more and apply at: http://bit.ly/OYaFKl

TECHNICAL DIRECTOR

Agency: OPM Response
Category: Programmers
Salary: DoE
Type: Permanent
Location: China

A major outsource game development studio in China is looking for a technical director. The successful candidate will manage lead programmers and team leaders, and communicate to art, design, sound and QA to ensure all those involved work within the technical design managed by you.

Find out more and apply at: http://bit.ly/1pywWcN

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www.develop-online.net/jobs

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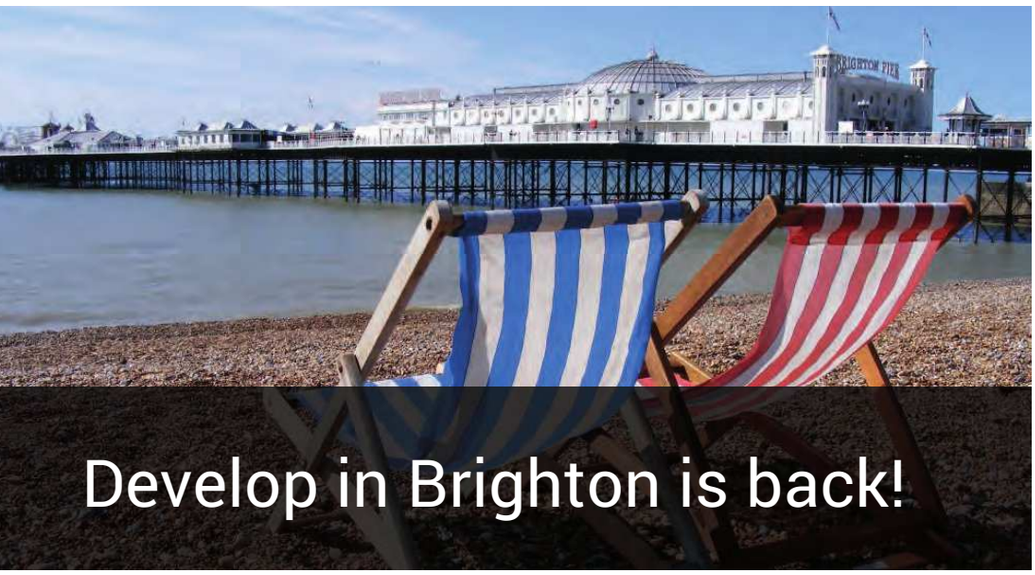

Develop in Brighton is back!

Come and join more than 1600 developers for Europe's leading game dev conference.

Insight

The Develop Conference brings together the whole game dev community - from global dev superstars to micro indies – to share experiences, information and **ideas.**

Inspiration

Come and be inspired by what other developers are up to - the innovations and successes. Then take that inspiration back to the studio with you!

Networking

It's not all about learning! Come and mix with your fellow developers after hours, make some new contacts and hang out by the seaside...

Speakers confirmed so far include:

Nathan Vella, Capy • Gavin Strange, Aardman Studios • Rex Crowle, Media Molecule • Roberta Lucca, Bossa • Stuart Saw, Twitch • Richard Evans, Versu • David Braben, Frontier • Peter Molyneux, 22Cans • Ella Romanos, Remode • AJ Grand-Scrutton, Dlala • Jason Avent, Boss Alien • Siobhan Reddy, Media Molecule • Nick Baynes, Big Bit • Jo Twist, Ukie • Mike Bithell, Independent and many more…

develop game jam NEW!

Do you love making games in a hurry?
Great – then the Develop Game Jam is for you! For years Develop attendees have been leaving Brighton brimming with ideas for making better games back home. Let's make some here!

09 JULY 2014 indie dev bootcamp NEW!

Free sessions for Indie start-ups and wannabes.
Join us to hear straight talking from successful indie developers about how they started, what worked for them, and what mistakes they made – so you can avoid repeating them.

indie dev showcase

Game submissions are now open!
If you'd like your Indie game to be showcased at the Develop Expo then enter our Indie Showcase competition today – deadline for submissions is 12 May and it's free to enter.

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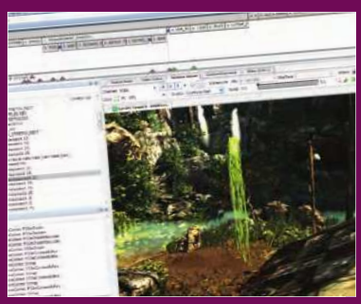
Your guide to 2014's essential game engines p38

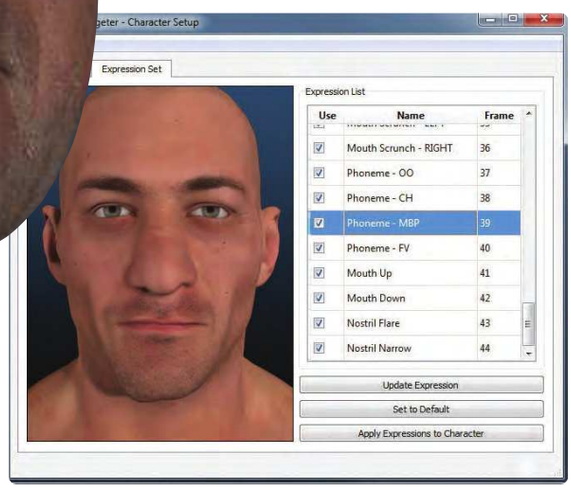


Inside Crytek's new free debugging tool RenderDoc p41

How Unity played a part in hit game Rust's success p48

Facing change

Facial animation outfit Faceware has conceived a new offering for indies and mobile teams. Peter Busch tells **Will Freeman** why it was needed, and what it delivers



FACIAL MOTION CAPTURE is typically the realm of triple-A projects.

Indeed it has been contributions to a wealth of high profile titles including *Grand Theft Auto V*, *Halo: Reach* and *Sleeping Dogs* on which Faceware has built its reputation, offering tools, hardware and workflows designed to empower the artist.

However, March saw Faceware unveil a new range of packages now available to – and tailoured for – indie and mobile studios. The full Faceware Indie Facial Mo-cap Package combines hardware and tools, including camera and headmount, and is also available in various combinations.

Develop caught up with Faceware to find out more.

Why did Faceware feel there was an opportunity with mobile and indie teams, in terms of facial animation technology? Was it a response to a particular trend?

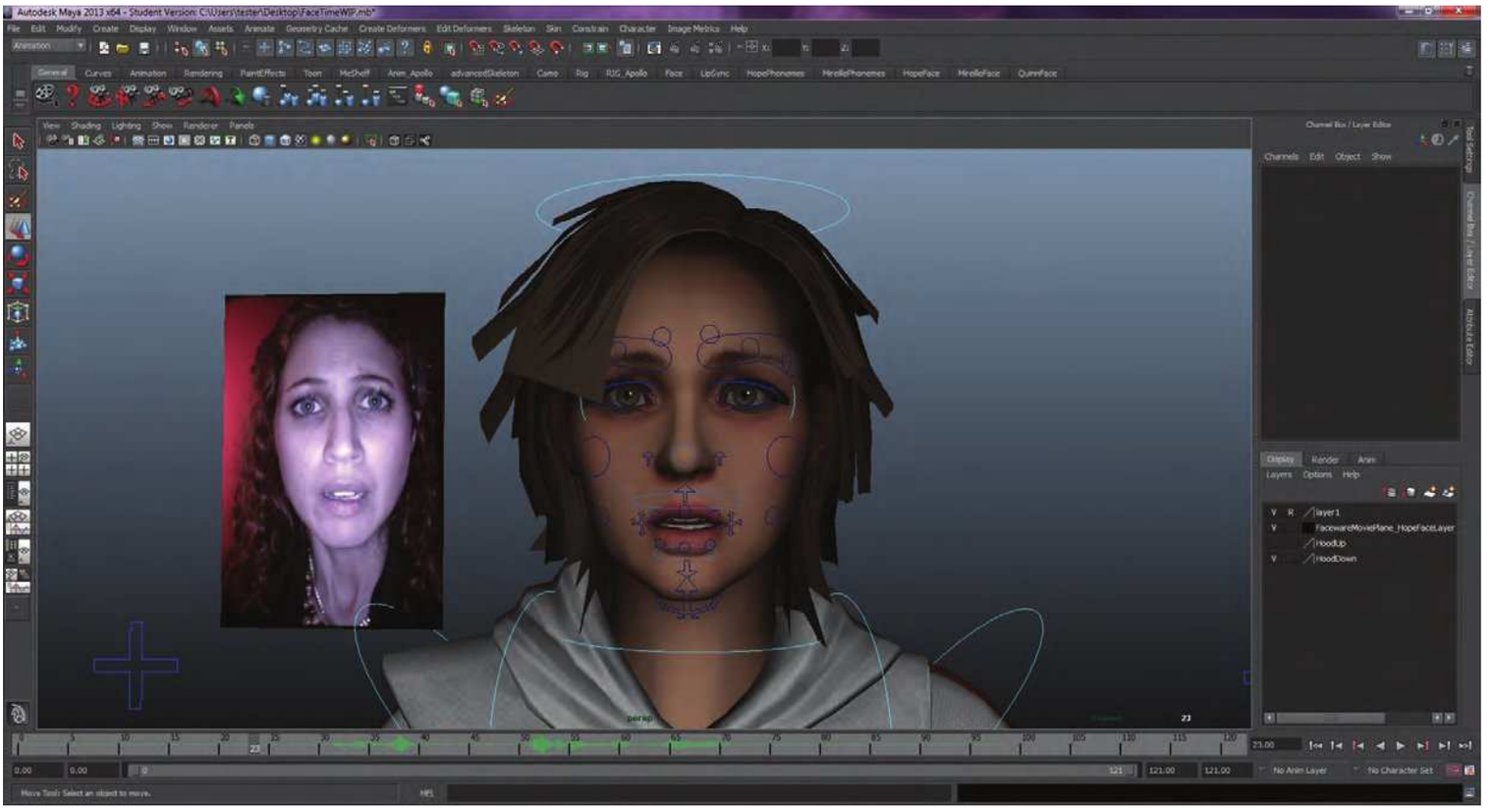
Peter Busch, VP of business development, Faceware: It's not a secret there is a massive shift in overall gaming from many triple-A developers to more mobile and indie development. We have noticed at the last few GDCs an overwhelming amount of indie and mobile developers coming to our booth and exhibiting on the floor. Plus, with emerging markets in Asia and South America, this has even further bolstered the indie market. We felt offering solutions that are easy-to-adopt at a low price point will aim directly at the growing quality demands in this space.

And what does this new package offer such teams?

Busch: The Indie Facial Mo-cap Package offers teams a complete turnkey hardware and software facial motion capture solution. This will give even the greenest of developers the ability to fit facial performance capture into their development cycle.

Clearly Faceware has long offered a high-end product, but at the same time, being markerless and such, at the developer end there's a simplicity to what you provide. Have you managed

Faceware's Peter Busch (above) is confident the firm's new Indie Facial Mo-cap Package can fit into the development cycle for teams of all sizes



Faceware's facial animation technology played a big role in bringing République's main protagonist Hope (above and far right) to life

to streamline that simplicity any more in terms of those studios new to capture technology and methods?

Busch: Yes. New technology that we released last year took a lot of the guesswork out of the process of producing solid results. We've standardised the method to get a good baseline out of our software – allowing new users to get up to speed quickly. Plus, by offering 'Lite' and 'Pro' solutions, studios can start with a simplified, strong product, and slowly integrate into the more advanced Pro features. It was important to us that the Lite versions contain our most powerful and exclusive technology for all of our end users.

So how significant are those differences between your Lite and Pro technologies?

Busch: It is fairly significant. The Lite version gives single artists and indie teams all of the tools they need to produce an animated result from video. It is quick, efficient, and contains some exclusive, industry-leading technology. The Pro versions of our software are aimed at larger teams of artists and studios wanting higher quality, higher production value.

The Pro version simply allows for increased accuracy in our tracking software, increased quality control and refinement in our animation software, as well as the ability to script anything, share data amongst a team, and floating licenses.

> ***"In working with Camouflaj, they found our workflow intuitive and easy, and were able to get animation running in Unity within a few days."***
>
> Peter Busch, Faceware

Even with your package of hardware and middleware tailored for smaller teams, indies still might be a little intimidated by the idea of embracing facial capture technology, such is its association with triple-A. What else has Faceware done or what can you do in terms of service to smooth the process for indie teams?

Busch: We love case studies and showing users content to make them more comfortable in their adjustment using to facial capture.

The integration of new technology and tools is always a risk for developers. Our hope is that through education we can help the community embrace our selection of tools and make them a mainstay in their workflow.

And how is the integration with other indie-friendly and mobile-friendly engines and middleware?

Busch: It's quite easy. Our tools are already fully integrated with Autodesk products, so the process of creating facial animation is much like any animation they might be producing by hand or procedurally. Autodesk and the middleware engine developers have many tools to export this data into engine-ready assets.

In working with Indie developer Camouflaj on *République*, they found our workflow intuitive and easy, and were able to get animation running in Unity within a few days.

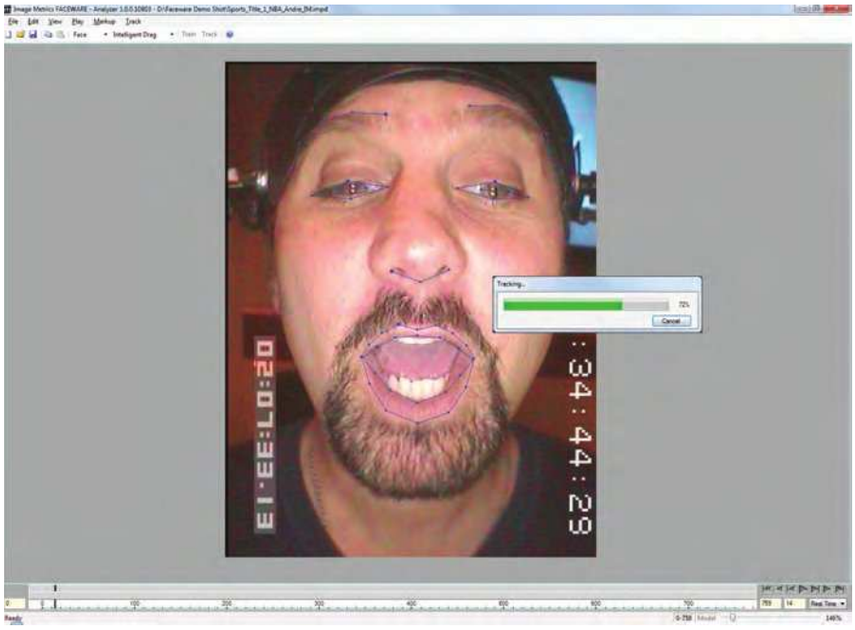
What do you see as being the potential impact of the Indie Facial Mo-cap Package on the end product indies and mobile teams are making?

Busch: With *Republique*, you can now see the triple-A quality available to indie developers. This will change the indie and mobile development market as the quality bar is higher and the possibilities for advanced storytelling are real.

With hardware always improving, the focus on gameplay and experience will only increase as well. We see a trend of indie developers wanting to match the quality of *Grand Theft Auto V* or *Batman: Arkham City*. With Faceware's Indie Facial Mo-cap Package, they have the opportunity to do so, with a simple, surprising low-cost licence.

And on that note, what are the pricing options available?

Busch: Developers should look at our Indie Facial Mo-cap Bundle – giving them a GoPro Headcam Kit and 'Lite' licences of our Analyzer and Retargeter software for $2,995 plus $238 per year. Developers wanting to use their own cameras can use the Lite versions of our software starting at just $395.



You've also launched two new elements to your Professional Product Line in the Pro HD Headcam and Faceware Analyzer Pro. Why should developers take notice?

Busch: The Pro HD Headcam is amazing – a higher framerate, higher resolution camera. The benefit of working with video-based facial motion capture technology is that you always have great video reference. With the Pro HD Headcam, devs now have HD-quality, crystal clear video as well as a higher framerate for improved quality of motion.

With something as complex as the face, the higher framerate allows better movement capture from our software. This is something that has long been a driving factor of quality body mo-cap, and now we're including this in our professional facial capture product line.

The latest version of Analyzer Pro is exciting. For the first time users do not have to exclusively use the data from Analyzer in Retargeter. By allowing X and Y values of our landmark tracking points to be exported on every frame of video, there are limitless possibilities for developers to take advantage of our sleek, intuitive Analyzer Product in new ways. Developers have already starting using this new data type for 4D scan retopologisiation, shader development, as well as a quality control tool to ensure tracking accuracy prior to retargeting. ■

www.facewaretech.com

HELPING CAMOUFLAJ STAND OUT

TINY INDIE STUDIO Camouflaj has courted much praise and attention around the release of it's iOS stealth-action title *République*, which joined the increasingly sizeable pack of games pushing the envelope in 2013 with regard to what is achievable with triple-A quality on mobile.

In part, Camouflaj owes that to being one of the first studios to enjoy access to the new Faceware package. When the technology company was initially considering serving indies with a tailored offering, it partnered with the studio to flesh out something distinctly built for smaller teams and projects.

What's more, it was the results evident in *République* that convinced Faceware to commit to building and releasing a final product in the form of the Faceware Indie Facial Mo-cap Package.

And for the developers working on *République*, they are confident it was Faceware's contribution that helped them secure their success.

"Character performance, whether its done on consoles or mobile, can be a very tricky feature to execute," says Ryan Payton, producer at developer Camouflaj. "More projects than not fall flat in their efforts to bring believable, empathic facial performance to their games.

"Even on a limited budget, Camouflaj was able to utilise the amazing Faceware technology to bring [our protagonist] Hope to life. With only an internal team of two, we've been able to deliver on strong facial performance that rivals many console games."

www.camouflaj.com

Camouflaj's Ryan Payton says Faceware played a key role in République's success

Key engines for 2014

In the wake of new free and subscription models, **Craig Chapple** breaks down how to choose the right engine for you

UNREAL ENGINE 4

Company: Epic Games
Platforms: Android, iOS, Mac, PC, PS4, Xbox One
www.unrealengine.com

EPIC'S NEW-GEN game development platform Unreal Engine 4 has officially been released to all developers, who can now get access on a $19 a month subscription with five per cent of gross revenue from any game sales going to Epic.

Devs also have access to the engine and complete C++ source code hosted on GitHub. The tech includes the Blueprint visual scripting system, the Persona animation system and Matinee timeline-based machinima and cinematic system.

UNITY

Company: Unity Technologies
Platforms: Android, BlackBerry, iOS, Linux, Mac, PS3, PS4, Xbox 360, Xbox One, Windows 8 (coming soon)
www.unity3d.com

UNITY 5 HAS just been announced for pre-order, and includes the integration of Geomerics' Enlighten tech, Imagination Technologies' PowerVR Ray Tracing tech, SpeedTree and revamped audio tools.

In the meantime, 4.3 features new 2D development tools and character animation tech Mecanim, and is free to Xbox One and Wii U developers. PlayStation 4 developers will also soon have the chance to get early access to the engine.

CRYENGINE

Company: Crytek
Platforms: Android, iOS, PC, PS3, PS4, Xbox 360, Xbox One, Wii U
www.cryengine.com

CRYENGINE IS ONE of the most powerful game engines available to developers, and, with Crytek keen to welcome indies, developers can now sign up to use the engine for $10 a month, royalty-free.

Features include the engine's recently announced physically-based shading, geometry cache and image-based lighting. The new subscription option is set to be available from May. Devs can still access the free CryEngine SDK under its current terms despite the new model.

GAMEMAKER

Company: YoYo Games
Platforms: Android, Browser, iOS, Mac, PC, PS3, PS4, Vita, Windows Phone
www.yoyogames.com

DEVELOPED BY YOYO Games, a wealth of titles have been created through 2D development platform GameMaker, including *Gunpoint*, *Hotline Miami*, *Spelunky* and *Super Crate Box*.

Last month it was announced that GameMaker: Studio would be free for all PlayStation platforms. The tech has support for PSN features and licenced peripherals including controllers, control inputs and cameras. For those developing on other platforms, a host of licences are available.

HAVOK VISION ENGINE

Company: Havok
Platforms: Android, iOS, PS3, Vita, Wii, Wii U, Windows 8, Xbox 360
www.havok.com

THIS CROSS-PLATFORM game engine has been around for years, and provides an object-oriented C++ API. The development tech is optimised for last-gen consoles and PC.

The full game engine licence includes licences for Havok Vision, AI and Behvaior as well as Autodesk's UI solution Scaleform illumination middleware Beast. The toolset ships with the source code and 3ds Max and Maya exporters.

As of yet the tech does not support PS4 and Xbox One.

PROJECT ANARCHY

Company: Havok
Platforms: Android, iOS, PC, Tizen
www.projectanarchy.com

PROJECT ANARCHY IS a complete end-to-end game engine for mobile that comes with a free licence allowing developers to release titles to iOS, Android and Tizen.

The tech integrates Havok's suite of game development technology including the Havok Vision Engine, collision detection and physical simulation tech Physics, Animation Studio and AI.

There are also expanded licences that come with a cost, including a PC exporter, available for developers who want more from the engine.

SHIVA

Company: ShiVa
Platforms: Android, Blackberry, iOS, Linux, Mac, PS3, SteamOS, Vita, Wii, Windows, Windows Phone 8, Xbox 360
www.shivaengine.com

SHIVA IS ON the comeback trail and is gearing up for the launch of ShiVa 2 for Windows, Mac and Linux.

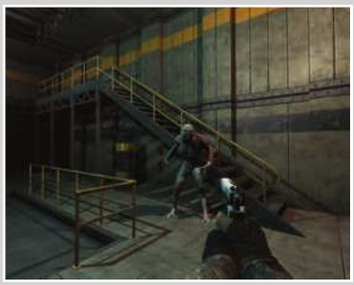
Version 1.9.2 is available to use now however, and features a Lua-based scripting language with debugging tools, a C++ plug-in system for custom engine extensions and a terrain editor with vegetation layers, texture painting and an ocean module. Other features include game controller support, video streaming and texture data streaming.

BIGWORLD

Company: Wargaming
Platforms: Browser, PC
www.bigworldtech.com

THIS GAME ENGINE focuses on the development of sprawling MMOs such as Wargaming's *World of Tanks*. In fact, such was its reliance, the developer bought the tech firm outright in 2012.

BigWorld can still be licenced by other studios creating MMOs, desktop and browser games however, and they can take advantage of the BigWorld server to help handle a single, persistent world, as well as harness terrain sculpting and painting tools, a multi-channel terrain texturing system, and its own lighting system.



LEADWERKS

Company: Leadwerks
Platforms: Linux, Mac, PC
www.leadwerks.com

IN ITS THIRD iteration, as well as supporting PC development, Leadwerks is championing another rising platform, Linux. Last year the middleware outfit raised $42,358 to bring native development from Leadwerks to Linux, which was released last month, along with version 3.1 of the Standard Edition.

The engine includes an OpenGL 4.0 deferred renderer with a uniform lighting model, a built-in script editor with debugger, code stepping and syntax highlighting. The Leadwerks editor includes built-in level design tools, Navmesh pathfinding and a visual flowgraph. Published games include *Hoodwink* and *My Whacky Moles.*

APP GAME KIT

Company: The Game Creators
Platforms: Android, iOS, Mac, PC
www.appgamekit.com

THIS CROSS-PLATFORM development tool focuses on mobile, PC and Mac support. Code can be written in AGK BASIC once and then compiled to each platform without any changes being made to the source code.

Programmers can also create their apps in C++, and The Game Creators have developed a C++ library that mimics the Tier 1 BASIC script, enabling developers to write applications that compile to all compatible platforms.

The App Game Kit can be licenced for $59.99 or tested through a free trial. AGK V2, which raised £33,000 on Kickstarter, is also due for release later this year.

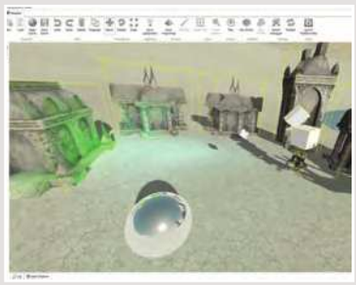
FPS CREATOR RELOADED

Company: The Game Creators
Platforms: Oculus Rift, PC
www.fpscreator.thegamecreators.com

ANOTHER GAME ENGINE from The Game Creators, FPS Creator Reloaded is designed as an affordable game engine for both entry-level and professional developers.

The toolset integrates AI, physics, shaders, weapon systems, real-time shadows and lighting, integrated debugging and a library of assets. Recently the firm also added virtual reality support via the Oculus Rift for the tool, while the engine has also been successfully greenlit for a release on Steam.

The game engine is currently going through a beta period, and interested developers can make various pledges of up to $100 to unlock new features.



REACH3DX

Company: Gamebase
Platforms: Android, Flash, HTML5, iOS
www.gamebryo.com

REACH3DX IS A brand new cross-platform game engine from Gamebase, the creators of Gamebryo, another development platform that has been used in numerous titles such as *El Shaddai* and *Epic Mickey 2: The Power of Two*.

Unlike that engine however, Reach3dx will focus on mobile and web platforms and is based on the OpenFL framework and Haxe. The new tech is still based on the modular architecture of past engines such as the aforementioned Gamebryo. Gamebase has said it wants to decrease development times so users can get their games to market faster. An open beta will be live throughout April.

HEROENGINE

Company: Idea Fabrik
Platforms: PC
www.heroengine.com

THE HEROENGINE IS designed for massively multiplayer and online games from any genre and has been used in titles such as EA's ambitious *Star Wars: The Old Republic*.

The dev platform can be licenced for $99 a year and includes a suite of integrated middleware such as SpeedTree, FMOD, Umbra dPVS, Awesomium and FaceGen.

Devs can also use the HeroCloud to script code, sculpt terrain and create physics systems in a single online development environment, allowing team members to work remotely in real-time from any location. The tech has been licenced by companies such as EA and ZeniMax Online.

MARMALADE

Company: Marmalade
Platforms: Android, BlackBerry, iOS Mac, Windows, Tizen
www.wearemarmalade.co.uk

CROSS-PLATFORM SDK Marmalade lets devs deploy code across multiple platforms from a single code base.

The tech uses C++, but also provides alternative solutions for devs looking to use Lua, HTML or Objective-C. Marmalade has released a host of other handy tools including Web Marmalade, enabling developers to create hybrid apps using HTML5, CSS and JavaScript, and Marmalade Quick, a RAD tool for creating 2D games and apps.

The recent full release of Marmalade Juice to developers enables creators to take native iOS titles and deploy them to Android.

TURBULENZ

Company: Turbulenz
Platforms: Browser
biz.turbulenz.com

AN ENGINE FOR HTML5 game development, last year Turbulenz went open-source and allowed developers to use the tech to create their games free of charge. This means games makers can develop titles, use the developer hub to test and iterate on titles, and self-publish and monetise online, all for free.

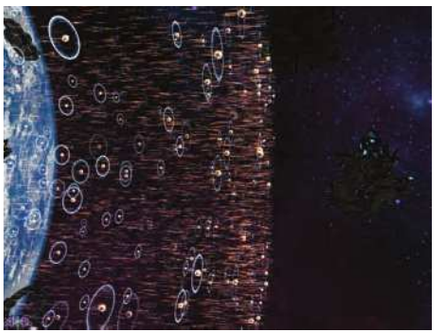
Games hosted on the Turbulenz website will be subject to a 70/30 revenue share split, but this does not affect other platforms. Among a plethora of features, the tool features physics, collision and animation systems, optimisations for multiplayer and social networking and supports up to 7.1 surround sound.

GAMESALAD

Company: Gamesalad
Platforms: Android, HTML5, iOS, Mac, Windows
www.gamesalad.com

GAMESALAD IS A mobile games development platform that first debuted in 2009 and has been used to develop a plethora of games, including more than 65 titles featured in the Top 100 games on Apple's US App Store.

Developers can create games for iOS, Android and HTML5 with the tool, which doesn't require any coding thanks to its visual drag-and-drop interface, also suitable for quick iterations on new ideas. The GameSalad creator can be downloaded for free, and develoeprs can upgrade to the Pro version for $299 a year.



MICROSOFT SPOTLIGHT

Building the impossible

How Azure enabled a five-person indie to rewrite the rules of MMOs and build a back-end to rival the world's best

Illyriad Games' founder and CEO James Niesewand says the support of Microsoft and its Azure platform has been invaluable

WHEN ILLYRIAD GAMES set out to build a new MMO technology for its upcoming game, it got used to the sound of laughter.

Age of Ascent demanded that the five-person studio build a platform that allowed vast numbers of users to play together in-browser, across the globe, without downloads, installs or plug-ins. They weren't looking to invest in a global network of servers, and they wanted to build the game in the JavaScript API WebGL.

Convinced it was possible, the quintet started making contact with cloud computing experts at a number of tech giants.

"We started to look at setting up a very scalable cloud architecture," confirms Illyriad founder and CEO James Niesewand. "We realised that existing MMO architecture runs on quite dated technology – they're based on single nodes. The solution to that is to throw more servers at it to support more players. And that's scalable, but only ever up to a finite point."

Prompted by research into the banking world's abilities with data, Niesewand and his colleagues realised there was another way. They were convinced the studio could instead distribute the CPU and bandwidth over multiple servers.

"These things aren't impossible, just difficult," reflects Niesewand. "However, everyone we talked to about it laughed at us. They saw a tiny indie of five people that wanted to build an architecture that nobody has ever done before. And then we visited Microsoft, and they immediately took us seriously. It was so different it was quite shocking. They loved the idea, and offered us an architectural design session to look at it properly."

Age of Ascent itself is what Illyriad plans to build into what it calls an 'ultra-MMO'; something so vast, it trumps anything seen before, supporting thousands of players simultaneously in-browser.

THE ULTRA MMO

To start with, as the team fine tunes their architecture and supports a Kickstarter just launched at the time of writing, they have fleshed out a massively multiplayer space dog-fighting component of the game; one that has already seen a peak use of 997 gamers in a single battle – and all playing in-browser.

> ***"Everyone we talked to laughed at us. Microsoft immediately took us seriously. They loved our idea."***
>
> James Niesewand, Illyriad

It's an impressive hands-on, and Niesewand admits it's been remarkably hard work. Getting everything running in synchronisation and at the same speed, from physics engines to rendering technology, presented Illyriad with its toughest challenge. Which is where partnering with Microsoft came in useful.

"We look after the front and middle-end, so the visuals, assets, gameplay and so on," says Niesewand. "We're also looking after the physics engines and interest management engines, which are critical to the speed of the game. Microsoft stepped in when it came to jointly developing a back-end; a networking backplane for the communications with Azure, which is their brilliant cloud platform."

BEYOND THE CLOUDS

Microsoft also provided the former BizSpark members with office space and advice, which Niesewand says has been invaluable. *Age of Ascent* sends and receives up to 280m messages around the likes of ship movement and bullets fired every second – reportedly the same volume in a minute as Twitter handles in a month – so it's little surprise that Illyriad has opted to partner with the tech giant.

But Niesewand is quick to point out that they are very much still independent.

"We feel very free," he asserts. "I like to think we're doing something like what David Braben did when he made *Elite*. I might be really flattering myself there, but that is how we feel."

Niesewand is being modest, but the fact remains that it is the support of Microsoft and the provision of its prolific Azure cloud back-end that has allowed the small team to embrace such a daunting task.

If successful and well-adopted, it could change not just how MMOs are supported, but consumer access to the genre. ■

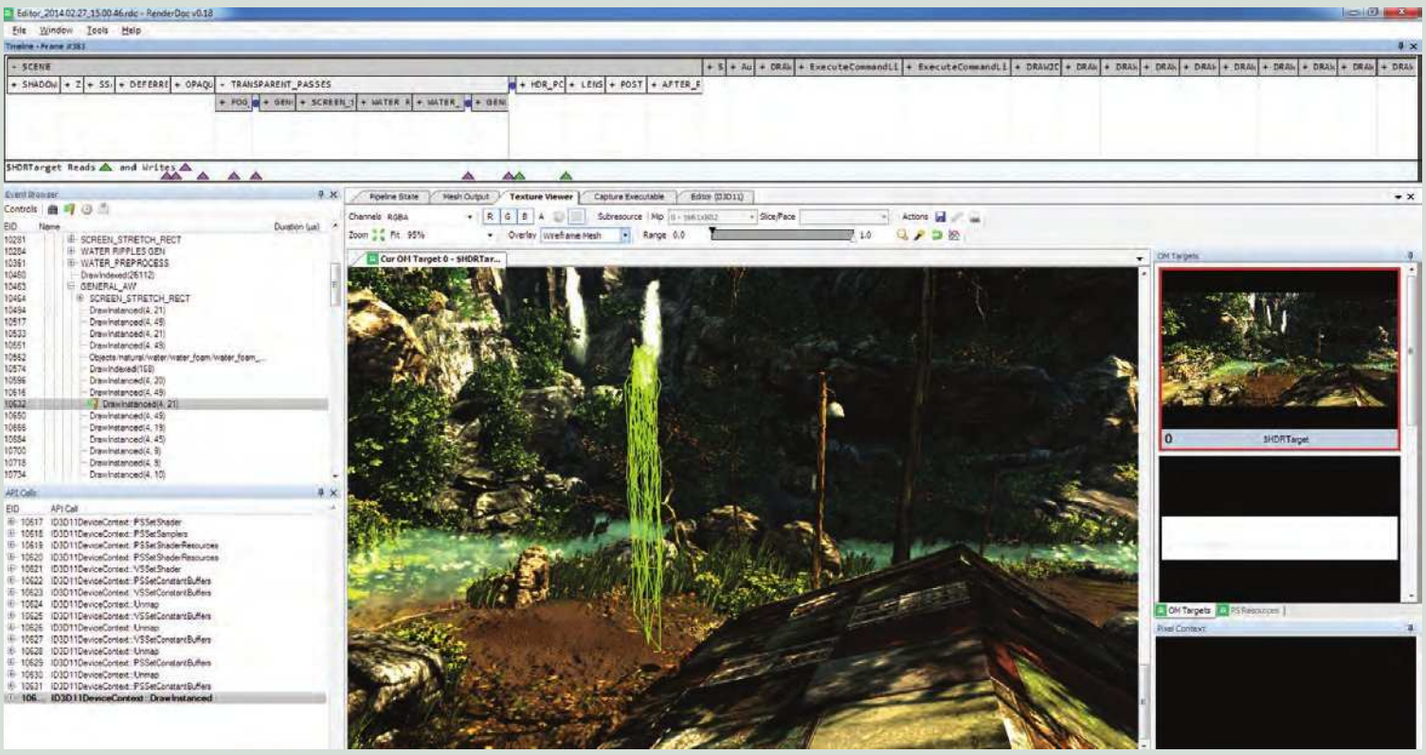
www.microsoftazure.com

Age of Ascent
Developer: Illyriad Games
What is it? A space MMO built with a hugely ambitious back-end by a tiny indie; all supported by Microsoft's Azure cloud platform
www.ageofascent.com

KEY RELEASE

Render inspector

Aaron Lee finds out about Crytek's open-source ambitions for its new graphics debugger, RenderDoc



CRYTEK DEVELOPER BALDUR Karlsson faced a problem during the development of *Crysis 3*: his existing debugging tools were encountering issues without pinpointing where code was going wrong. But instead of settling for a half-decent, off-the-shelf solution, he built a better one.

"I decided that I would start work at home on a graphics debugger myself to see if it could be achieved," the senior graphics programmer tells *Develop*. "I worked mostly in secret for six months until I knew it could be done. Since then I've been working to improve it, adding more features and game compatibility."

The result is RenderDoc, which Karlsson describes as a frame graphics debugger. This means it will capture a single frame of a game and allow graphics programmers to dive into every part of that frame to see precisely what is happening and diagnose areas where incorrect rendering occurs.

A DISCERNING DEBUGGER

RenderDoc's first release contains basic debugging functionality that Crytek expects other developers will need, and is a framework that it intends to build on.

Karlsson says the free debugger will be equally useful for anyone who is working on rendering, shaders or graphics programming at triple-A or indie studios.

"I am a graphics programmer working in the industry myself, and the growth of the tool was shaped directly by the team I'm working with, as it was used on real-world situations," he explains.

The tool was designed to be a graphics debugger first and foremost. This gives it an advantage over similar tools designed primarily as performance analysis tools, which can double as a debugger.

> ***"RenderDoc aims to get out of your way and let you fix the bug you're looking for."***
>
> Baldur Karlsson, Crytek

Karlsson says RenderDoc should work out-of-the-box on any Direct3D 11 game. It uses annotations from the application to aid in debuggability and readability. Textures, buffers and parts of the scene can be named and these names are used wherever possible, in addition to type and name info extracted from the shaders.

"RenderDoc aims to get out of your way and let you fix the bug you're looking for," Karlsson says. "I've tried hard to make it 'just work' on D3D 11 out-of-the-box for anyone who tries it. To be intuitive and responsive to pick up and use, and give you information as easily as possible."

FREE AND EASY

Being part of the studio behind CryEngine, Karlsson tells us in future there might be special RenderDoc functionality made available to the game engine. However, he adds that the tool will "absolutely remain free", and will only get more accessible, as it's spun into a full open-source project.

In the meantime, Karlsson encourages users to contact him direct with requests and suggestions via **@RenderDoc** or **renderdoc@crytek.com**.

"Graphics is always a hot topic and with the new generation of consoles advancing what technology we will see in games, today is no exception," says Karlsson. "As rendering becomes more and more complex the tools must keep pace to ensure that programmers can be as productive as possible." ■

RenderDoc
What is it? A free-to-use graphics debugger that helps pinpoint and diagnose rendering issues
Company: Crytek
www.cryengine.com/renderdoc

RenderDoc creator Baldur Karlsson (above) built the tool in his spare time out of a desire to swat the rendering issues he and his team faced on Crysis 3

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UNREAL DIARIES

The reasons for Rime

Tequila Works discusses bringing its Unreal Engine 4-powered open world to PlayStation 4

Tequila Works' creative director Raúl Rubio took inspiration from the likes of Spirited Away and Journey for the visual direction of Rime (main)

RIME DEFIES THE visual expectations of a post-apocalyptic world. Palettes of decay and stifling clouds give way to panoramic views of majestic stonework rising over blue seas and billowing grasses. Like a painting in motion, *Rime* is beautiful and it is being created with Unreal Engine 4.

A PlayStation 4 exclusive from Spanish developer Tequila Works, *Rime* stunned crowds when it was unveiled by Sony at Gamescom 2013. An open world game of exploration and puzzles, *Rime* follows the journey of a young boy traversing the ruins of a once-powerful civilisation that mysteriously fell in ages past.

Without a word of dialogue, *Rime* relies upon its environments and the interplay of light, darkness, sound and color to tell its story.

"*Rime* is a very personal project, and we wish to create deep emotions through the visual and physical experiences of gameplay rather than cutscenes," says Tequila Works creative director and CEO Raúl Rubio. "It has to evoke wonder, as if looking through the eyes of a child.

> ***"Rime is a very personal project, and we wish to create deep emotions through the gameplay."***
>
> Raúl Rubio, Tequila Works

"For us, visuals are not only to see but also to feel emotionally. UE4 allows us to translate influences from Joaquín Sorolla, Salvador Dalí, Giorgio de Chirico and even Studio Ghibli into something that expresses our artistic vision in a way that can be experienced by the player."

ORIGINS FROM EVERYONE

Tequila Works was founded upon the idea of creating with gusto, and the team draws inspiration from natural surroundings while seeking the beauty and the craziness in the ordinary. It wants players to not only move through the world of *Rime*, but to ask questions and discover its origins through journeying and experimentation.

Rubio says that UE4's new Blueprint visual scripting system, which expands upon and replaces Unreal Kismet, has proven to be one of the most beneficial tools. Blueprints have allowed the team to quickly transform ideas and possible game scenarios into working prototypes, streamlining much of the ramp-up time associated with early development.

Tequila Works previously used UE3 for the creation of its first game *Deadlight*, and switching to UE4 required little adaptation.

"Our company culture is based on team participation," says Rubio. "Everyone plays a part in the design process, using individual perspectives to contribute to the user experience. Our artists and designers and programmers all collaborate directly inside Unreal Engine 4 on a daily basis. The tools needed for every task and department, including sound and lighting, which are integral to the experience – are all right there."

When asked if he'd recommend Unreal tech, Rubio says: "An engine is not only about raw power or price. It is a set of tools, and in the right hands, UE4 has no competition." ■

Rime
Developer: Tequila Works
Publisher: Sony
Platform: PS4
www.facebook.com/rimegame

UPCOMING EPIC ATTENDED EVENTS

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Staffordshire, UK

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May 7th to 8th
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HEARD ABOUT

Rolling beats

John Broomhall talks with Turn 10's Nick Wiswell about making Forza 5's fast cars roar

CRYSTALLISING AND DELIVERING the next-gen audio vision for the latest in Microsoft's iconic racing franchise and Xbox One launch title *Forza Motorsport 5* was the responsibility of Turn 10's creative audio director, Nick Wiswell. Was he aiming for realism or drama?

"I wanted it to sound authentic but not at the expense of impact," he says. "It's about people's perceptions of what the world sounds like, not necessarily the reality.

"For example, a production car, even a loud one, has only a small percentage of the audio intensity or power of a race car at full throttle. That's the reality, but having a production car's intensity scaled

> ***"We wanted the race music to react to the action, like an extra layer of gameplay cues."***
>
> Nick Wiswell, Turn 10

to a small percentage of the loudest car in the game would rob all cars of impact and would not meet the listener's recollected perception. This is why reality in its strictest form is not the goal. I want to reproduce the perception."

During the early stages of design and prototyping, Wiswell and his audio lead Chase Combs headed to San Francisco to consult with Skywalker Sound's post-production crew.

"The question arose: how would a top movie post-house approach designing and mixing *Forza* sound? So we thought, why not go find out? We provided Skywalker with video footage – a lap of the Alps, with zones of varying track detail and surrounding scenery – and asked them to 'post' it like it was a movie."

Wiswell included a big crash at one point and some drifting to hear how Skywalker approached collisions and how they'd handle skidding. The direction was to make the video 'impactful, exciting and thrilling', like a film car chase scene.

With no camera cuts to work from, Skywalker's Al Nelson instead broke the footage down into track zones; the excitement of the crowd at the finish line, a tunnel followed by a big open lake and so on. The results gave Turn 10 some "very interesting" ideas about mix approach, but there were places where the car wasn't audible in the mix. Still, that prompted Wiswell and his team to ask: where do you need to hear things, and where don't you?

"This led us down some new paths of creative thinking. For instance, adding non-literal sounds to add tension in certain places, and going over-the-top in some areas, like using cannons for backfires," says Wiswell.

"For Skywalker Sound, the car became like the dialogue – the main character – mixed centre-channel heavy. Therefore, they'd keep other things out to leave that space. And these are techniques we carried forward to the game, in some cases overriding literal 3D positions of sound emitters to provide more mix clarity."

SOUNDS EPIC

Meanwhile, music was also set for a radical makeover, moving stylistically from previous electronica to a dramatic orchestral piece.

"Music in racing games is an interesting discussion," says Wiswell. "Yes, there are hardcore racers who don't want music at all, and yet it does add to the feel of the game so we wanted those positives without being sonically hamstrung by conflicting frequencies, such as distorted guitars and car engines.

"We wanted music to build excitement towards the race and came up with 'The Hero's Journey'. You have this Zen space: your 'homespace' where you select and work on your car. As you travel to the race location, music intensity starts to build a sense of exploration and discovery. Then, at the track, it's all about race itself.

"We wanted the race music to react to the action, like an extra layer of gameplay cues to help you, so there are music shifts depending on race conditions. What's your position? Is it the first or last lap? Are you working your way through the field approaching other cars? The music ebbs and flows and swells in response to this.

"It made sense to custom-create music specifically to hit these emotional beats – plus the whole thing sets a cinematic tone for an epic game." ■

Forza Motorsport 5
Developer: Turn 10 Studios
Publisher: Microsoft
Platform: Xbox One
www.forzamotorsport.net

John Broomhall is a game audio specialist creating and directing music, sound and dialogue. Find him at: **www.johnbroomhall.co.uk**

Turn10's Nick Wiswell says Skywalker Sound helped his audio team think about where and when the player needs to hear sounds in Forza 5 (main)

PITBULL

Home is where the work is

Pitbull's senior programmer **Chris Wood** ponders the perks and perils of working out of the office

Pitbull Studio's Chris Wood (above) says working from home is no different to working with someone in another room, but it may only suit certain personalities

FOR ME, THIS month marks five years of full-time home working. That encompasses two jobs that I applied for, interviewed for, and was offered entirely online.

To be fair to Pitbull, Robert Troughton had known me for years and didn't need to vet me. But for the first couple of months at my previous job, for all my employers and colleagues knew I could have been an AI bot hell-bent on world domination. That is if world domination involved developing racing games for PS3 and Xbox 360.

HOME COMFORTS

Five years in and I find myself writing this and trying to explain what working from home is like: its benefits, its drawbacks and whether I 'get any work done'. People are always asking me this. They always say the same things: "How do you get any work done?", "Oh, I couldn't do it. I'd get nothing done" and, weirdly, "Do you work in your pants?"

I tell them I get more done and care more about what I get done because it's all I've got to show for the day. I tell them that people who work in offices, however conscientious, think that part of their job is just turning up. But for me turning up, grabbing a coffee, chatting with so-and-so and playing a bit of multiplayer at lunchtime aren't bits of my day that anyone notices.

I've never been self-employed, but I think home working is probably something like 'self-employed lite': being productive is the only thing that matters.

The benefits are pretty obvious. Back at the start, after years of commuting, not having to do it anymore was life-changing. At the time I had two very young children. I'd be home in time to put them to bed as long as I was lucky with the traffic and wasn't working overtime.

> ***"The skills needed to work from home are exactly those needed to work with other organisations."***
>
> Chris Wood, Pitbull

Overnight I went to starting my working day an hour later, finishing an hour earlier and saving a tidy sum on fuel every month. But the benefits must be weighed against the potential drawbacks.

My first remote job was with a developer whose employees were almost entirely made up of remote workers from all over the world. It demonstrated to me the biggest factor in making home working successful: company culture.

In a culture of remote collaboration, the rules were clear. The company operated primarily on a private online forum. All relevant discussions and information from elsewhere had to go on the forum. Instant messages were used for quick chats.

The most commonly quoted drawbacks of home working are social isolation and difficulty collaborating. These were all minimised effectively by the company's culture because everyone had to engage fully with online communication.

THE RIGHT PERSONALITY

The other big factor is personality. Working remotely levels the playing field for the introvert whereas the extrovert loses their advantage. I've known people to last a few weeks before they give up and return to the office. We're either suited to it or we're not.

Moving to my current job with Pitbull was a very different experience. Now I am a member of a small, office-based company with initially only me working remotely. This might have been difficult but more remote workers soon followed.

The skills and tools needed to work from home are exactly those needed to work with other organisations. This is the way our industry is heading and at Pitbull we already do it very well. We integrate fully into teams on another continent, at Epic Games HQ, with the minimum of fuss

For me and other home workers, it's no different to working with someone in another room – albeit one who doesn't start until 2pm and spells things wrong. ■

jobs@pitbullstudio.co.uk

MADE WITH MARMALADE

Success across the board

A look at how Marmalade's in-house studio tackled a suite of games for Hasbro

Why Marmalade Mattered: The studio used its parent company's own powerful SDK to deliver games that served as digital extensions of iconic, closely guarded IP
www.madewithmarmalade.com

WHEN BRANDED PLAY company Hasbro needed a developer to help it turn a clutch of its iconic brands into a collection of mini-games for a new app, it made sense to go to a studio with intimate knowledge of mobile technology.

Which is how it came about that Marmalade Game Studio – the development team wing of the eponymous SDK outfit – stepped forward to take on building *Hasbro Arcade*; an app-based gaming platform containing numerous titles based on the likes of *Operation*, *Transformers* and *Monopoly Junior*.

"With this title being a compendium of mini-games, and with the intent to extend the offering over the coming months, Hasbro needed a developer they knew could deliver on a sizeable and ongoing project," explains Michael Burnham, studio head at Marmalade Game Studio. "Our work over the years on high-profile titles for the likes of Activision and Square Enix stood us in great stead for this."

TRANSFORMING BRANDS

Indeed, Marmalade Game Studio's earlier work on Hasbro's *Game of Life* and *Trivial Pursuit* mobile titles made the team a natural fit, but something more was needed for the new project. Hasbro was keen to work with a team that was capable of more than mere digital clones of their physical products, and able instead to rework and extend its brands through mobile content.

"This was an exciting creative prospect – being able to forge new and interesting experiences within an existing world, yet remaining free to propose almost any genre of game experience," states Mike Barwise, Marmalade's creative director. "For example, with *Operation Rush*, we wanted to create a mini-game that would replicate the feelings that a player experiences when playing the board game, such as trying to keep calm under pressure, or performing steady yet dexterous hand inputs."

Burnham adds: "Thankfully, we are working with a company who understands a developer's need to have Transformers on their desk and a Nerf blaster at their side."

But his point is a sound one. Marmalade found that Hasbro was remarkably generous with the access to source material it provided, giving the development team a chance to play with IP that it would be easy to assume is ring-fenced by creativity-stifling brand security.

> ***"We are working with a company who understands a dev's need to have a Nerf blaster to hand."***
>
> Michael Burnham, Marmalade

"We've been fortunate to be provided with many digital asset deliveries from the Hasbro brand teams including access to CAD models of the toy moulds, giving a solid base for our artists to work from, aiding production in both speed and overall quality," reveals Barwise.

A DELICATE OPERATION

The real challenge, of course, came in working simultaneously on the many different mini-games that make up the recently released *Hasbro Arcade*, which, again, is where working with your own company's mobile middleware is useful.

"On the engineering side, when needing to write platform dependant code, we found the SDK offers a great system for adding extensions that nicely keeps the platform code behind a common interface," explains Barwise. "The flexible approach of the SDK also allowed the engineers to write their own custom shaders to optimise performance."

Away from the code, having access to the simulator via PC allowed the team to quickly test a variety of aspect ratios and orientations. Similarly, being able to build and deploy to iOS from PC provided a significant time-saver when tackling multiple games as part of a single map.

"[It helped that] while the mini-game production was staggered, there was always a core team working on the central features such as the game selection spinner and underpinning engine tech," adds Burnham.

The partnership has delivered Hasbro a popular way to share its brands. Meanwhile, Marmalade's in-house studio continues its work on new mini-apps for the title.

Barwise concludes: "People can have some trepidation about working with existing brands, feeling that it may compromise their creative freedom, but if you take the time to study them and why they are popular, you can find areas within the project to excite and interest you. Then, over time, this initial 'breach' spreads, and before you know it, you have a fully engaged team working with belief in the product." ■

Hasbro Arcade
Developer: Marmalade Game Studio
Platform: Android, iOS
www.hasbro.com/games

Mike Barwise (top) and Michael Burnham (below) say Hasbro's playful outlook allowed Marmalade's in-house game studio to bring a fresh take to its board game franchises (main)

UNITY FOCUS

Making Rust shine

Facepunch Studios boss Garry Newman explains why he chose Unity to power his Early Access best-seller

Facepunch's Garry Newman (above) says Unity's wide use makes troubleshooting a snap when you run into issues

Unity has enabled Facepunch to iterate on feedback from its Early Access version of Rust (main and below right), the survival game that climbed to the top of the Steam charts in February

RUST HAS SOLD more than one million copies since its launch late last year and, like other Early Access games, the title isn't even finished.

The open world exploration and survival title is the brainchild of Facepunch Studios, the indie developer set up by Garry Newman – better known as the creator of *Garry's Mod*.

While this well-known physics sandbox ran on Valve's Source engine, Newman opted for an alternative tool for developing *Rust*.

"There's a bunch of obvious benefits to using Unity," he explains. "The ease of making multiplatform games, for one; you press a button and it compiles for a platform of your choice. There's no need to try three different PCs running different operating systems, no need for virtual machines – it just works.

"The pricing is really clear and simple. It's not cheap, but for what you get it's not expensive either. It has subscription options too.

"The engine is well used. If you have a problem and you type it into Google, about 50 other people have already had that problem and probably found a solution. Those two days waiting for the engine's developer to respond to your email is condensed to 30 seconds searching Google.

"Unity is a different way to work – although this throws a lot of programmers off. But if you're a game developer and you want to make a game, you'll probably find that you can get a prototype done in a week in Unity."

ADAPTIVE RUST TREATMENT

Unity also helped the Facepunch team when it came to iterating and updating elements of the game based on feedback from the Early Access users. Given the game is still in a very public beta form, being able to fix problems and add new features will be essential to continuing *Rust*'s success.

"Unity does allow us to evolve a lot faster than we would be able to in another engine," Newman says. "If you're doing things right, then adding things like new items or weapons to your game should generally be a case of copying a prefab, changing a couple of components, and changing the art."

Rust encompasses a number of mechanics. As well as standard exploration and combat, it also revolves around construction and, as you would expect from Facepunch, physics-based interactions between objects.

> ***"If you're a game developer, you'll probably find that you can get a prototype done in a week in Unity."***
>
> Garry Newman, Facepunch

Newman explains how Unity enables these mixed mechanics to come together: "Because this is a very general engine and isn't strictly tied to one type of game, it doesn't have any expectations of the developer. This allows us to defy genres in a lot of ways.

"The asset store has been a godsend. In the early prototype stages, it's a lot of risk to add art to a game; you might decide to go a different way, or scrap the project completely – then the art is just thrown away. With the asset store you can pretty much type in anything you want and get a result. All of the animals models in *Rust* are from the asset store. We haven't felt the need to change them yet, because they're serving their purpose."

LOOKING FORWARD

Newman is understandably positive about Unity, but he's also keen for the team behind the engine to continue developing it – if only to help developers like himself who are pushing the limits of what the tech can do.

"We'd love to see the physics system get an upgrade," he says. "We're limited in *Rust* right now by the 65k collider limit, so we'd love to see that limit broken."

Newman adds that he "absolutely recommends" Unity to other developers, chipping some words of advice: "Make the game, not the engine. Don't fight Unity – find a way to embrace and use it. For example, don't go to huge lengths to try to control the garbage collection." ■

Rust
Developer: Facepunch Studios
Publisher: Facepunch Studios
Platform: Linux, Mac, PC
www.playrust.com

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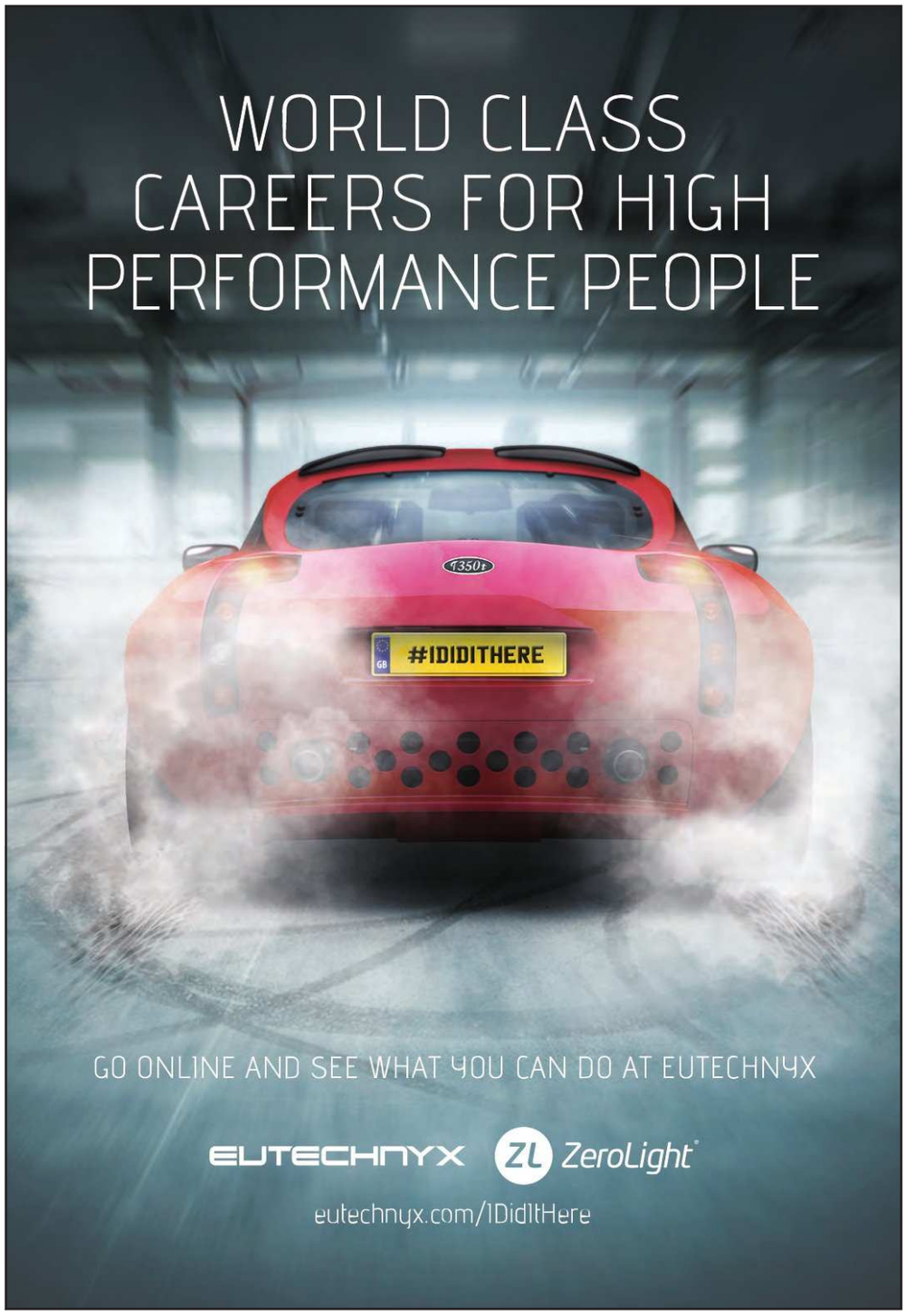

SERVICES SPOTLIGHT

This month: **Fireteam**

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W: www.fireteam.net

FIRETEAM WAS BORN out of a passion for multiplayer and connected experiences. All of its founding members hail from Splash Damage, where they spent over a decade creating and operating multiplayer games. Based in Kent, the dev house creates tools that allow studios to add online features to their games with minimal effort.

"At Splash Damage, we frequently had to reinvent the wheel when it came to online services, which quite literally form the backbone of multiplayer gaming. Existing tools either weren't able to provide what we needed, or they required a huge amount of work to integrate," Fireteam CTO Arnout van Meer tells *Develop*.

"With games now becoming richer and more connected experiences every day and different business models emerging, it's becoming harder and harder for developers to keep up. We started Fireteam with a single goal: provide an online services platform that's really easy to use."

Warner Bros Montreal, NetherRealm and Splash Damage's own internal teams are among the studios using

Fireteam (above) specialises in technology to help developers avoid the complexities of running online games

Fireteam's technology. It has so far driven titles from massive boxed products such as *Batman: Arkham Origins* across consoles and PC, as well as its companion mobile game to free-to-play, turn-based title *RAD Soldiers*, supporting over 500,000 daily active users in the process.

Multiplayer staples such as leaderboards and matchmaking are included in Fireteam's service. But games using its technology can also sell virtual items, power online asynchronous gaming, provide cross-game unlocks and implement random loot drops. For some projects, the team goes even further and performs custom development to meet specific requirements.

For instance, the *Batman: Arkham Origins* mobile companion game provides unlocks in the console and PC versions. To achieve this, Fireteam integrated Warner Bros' proprietary ID system into its existing technology and provided the bridge allowing the various platforms to synchronise data. It then supported the various development teams involved with integration and ensured all systems operated perfectly for a smooth launch.

As well as technology, the team also shares its experience in online services by consulting for studios worldwide.

"With our background in multiplayer game development, we know what developers are looking for and how we can make it as easy as possible for them to get going," concludes van Meer. "Our own platform is ever-evolving, and we constantly improve and expand our technology to make it as accessible and powerful as possible. This is an exciting time in game development, and we can't wait to see how developers use our technology next."

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TOOLS SPOTLIGHT

This month: **MonoGame**

MonoGame
Various offices
Ireland, UK, US

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MONOGAME IS AN open-source tool that powered Supergaint's award-winning *Bastion* and Phil Fish's *Fez*. It's an example of what happens when games developers are let loose on a toy box that's even more capable than its creators anticipated. In this case, Microsoft's XNA 4 API – the framework originally built for Xbox 360 – was tweaked to work on iOS, Android, Ouya, PS4, PlayStation Mobile, Mac, Linux, Windows and Windows Phone 8.

"The way MonoGame is different is that it's based on tech that was widely used by the indie game development community on the Xbox 360," project co-ordinator Dominique Louis tells *Develop*. "It seems Microsoft was too short-sighted to see that it could be the foundation for indie game development on non-Microsoft platforms. That is what we saw in it. MonoGame is an API and gives you full control of how you want to build the engine for your game."

Supergiant's award-winning Bastion (above) and Skulls of the Shogun (right) were both built with MonoGame

> ***"Microsoft was too blind to see that it could be the foundation for indie development on other platforms."***
> Dominique Louis

MonoGame was started by Jose Rafael in 2008, as XNATouch. Louis joined the project in 2009 and eventually took over when Jose moved onto Unity and other technologies. Since then, various people have contributed their skills to the project and helped add all the platforms it currently supports.

"Our aim is to allow maximum code reuse between platforms and thus easy porting of games between platforms. Hence our moto: write once, play everywhere," Louis says.

Recently, the team added PS4 support, and plans to bring MonoGame to other non-Microsoft platforms, such as Wii U, are underway. Meanwhile the MonoGame experience is still being fleshed out as the team expands the API past what Microsoft envisaged.

"We are speaking with other console manufacturers about bringing MonoGame to their platforms," says Louis. "We will take it where developers want it. We will continue to improve on what is currently on offer and updating the APIs and underlying technologies to meet modern demands."

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TRAINING SPOTLIGHT

This month: **BUGS (Business and University Games Syndicate)**

BUGS: Business and Universities Games Syndicate
United Kingdom

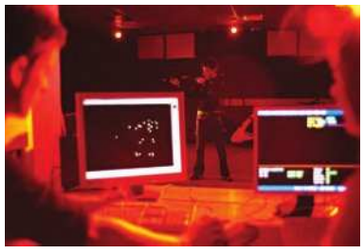
W: www.bugsnet.org

SENSIBLE SOFTWARE FOUNDER Jon Hare isn't happy about the state of games education. He feels many university courses still don't encourage students to make games during their studies. The result, he says, has been a frighteningly low number of skilled graduates and dissatisfaction for companies, universities and students.

Newly launched student network BUGS is Hare's way of improving life for students and games companies.

The Business and University Games Syndicate's core principles include for students to make publishable games in groups each year as part of their studies and that all students learn professional practice in games as part of their course. It also wants BUGS universities to share non-sensitive learning materials and facilities with each other and will endeavour to find games industry contacts for all its students.

Eleven UK universities have signed up at the time of writing, and Hare says that translates to about 33 per cent of games students in the country. He added that pupils who have their games published on the network have access to 35 per cent of the work placements and graduate-level jobs available in the UK. Moreover, BUGS has 25 development and publishing companies signed up, ranging from small three-man teams to mid-size outfits like Bossa, Eutechnyx and Team 17, and large studios like Sony, Jagex, Codemasters and Creative Assembly.



Staffordshire University (above) is one of 11 UK universities that have signed up to the network

Staffordshire University was among the first institutes to sign up, and senior lecturer in games design David Edwards tell *Develop*: "We have been encouraging hands-on experience for a long time at Staffs, with students collaborating in their second year to design and develop their own ideas and mechanics. The BUGS initiative however promotes the idea of students making collaborative games at all levels of an award. Therefore we have restructured our first and third years to enable students to do this."

Students graduating from Staffordshire this year will have created at least two games using the Unreal Engine. The current first-year students are already making simple games in groups. And Edwards says the collaborative nature of the projects means that students have to take different roles within their groups, building their management, communication and productivity skills.

"The BUGS Initiative provides a great opportunity to bring academia and the games industry closer than ever," he says. "While Skillset has made great strides in ensuring that courses contain the most appropriate content for their discipline, the BUGS initiative adds to this by ensuring that different disciplines work together to make games. We know that studios want graduates who can fit straight into their dev teams."

Hare says the service is needed "if we are to rebuild the UK games industry and take us back into the top three development countries in the world".

He concludes: "Our long term goals are to expand BUGS beyond the borders of the UK and into other industries to help connect top students from all over the world with work placement and graduate level job opportunities."

INFO

Course: Various courses
Established: 2014
Staff: Jon Hare (co-founder), Carsten Maple (co-founder)
Selected universities: Anglia Ruskin University, University of Bedfordshire, University of Grimsby, Manchester Metropolitan University, University of Portsmouth, Sheffield Hallam University, Staffordshire University

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THE FAQ PAGE: SIMON READ

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Aside from football, New Star Soccer (right) creator Simon Read (below) enjoys boxing. He also used to play guitar in a Stone Roses cover band

Who are you and what do you do?
I am Simon Read, founder of New Star Games and creator of *New Star Soccer* (*pictured right*).

What are you working on right now?
I am currently updating *New Star Soccer*, which we will continue to improve throughout this year and beyond, but I have also begun work on a new title which we will announce in due course.

What was the first video game or product that you ever worked on in the industry?
Oh, that's a tricky question. I used to make games when I was a teenager and released an Amiga game called *Captain Bonus* into the public domain. It was very much inspired by *Another World* and wasn't very good. I then had a hiatus from coding for a few years before making *World Cup Manager* in 2002.

What was the first video game you ever played, and did you enjoy it?
It was a *Pong* clone that my grandad owned: a Prinztronic Video Sport machine which I still have in its box. I doubt it is worth anything much, it's more of a sentimental thing to me.

What was the most recent video game you ever played, and did you enjoy it?
The most recent was *Castles in the Sky* which I loved. The perfect length for me.

What is your favourite game ever, and for what reason?
I'll probably go with *Kick Off 2*. It came into my life when videogames were all that I really cared about. Before music, before girls, before real life.

My mate and I played it constantly and then at some point we realised we could import our own tactics from Dino Dini's other great masterpiece, *Player Manager*. That increased its lifespan by at least another year.

> ***"I am loving the sheer number of games we are seeing and the quality that is coming out on a daily basis."***
> Simon Read, New Star Games

How many hours a week do you spend playing video games?
Nowhere near enough. I guess around three or four. I have a new baby boy and a toddler which doesn't leave a lot of free time, especially when I enjoy making games at least as much as playing them.

What area of the industry needs more 'investment'?
Ah, I'm not really the person to ask. Until recently I've always worked alone, funding my own games. I was on the outer fringes of the whole scene and didn't really pay any attention to the issues and politics involved. It was just a hobby for me and I continue to try to treat my work in that way.

What do you enjoy about the video games industry today?
It's a bit of a double-edged sword but I am loving the sheer number of games we are seeing and the quality that is coming out on a daily basis.

There are similarities to when I was a kid in the Eighties and Nineties where I was lucky if I could buy a new full-priced game every now and then, but there were also loads of budget titles for £1.99 that you could buy more regularly. It feels a bit like that with the whole current console/mobile situation but the quality and quantity is just so much higher. Unfortunately I don't have enough time to play everything that I want to.

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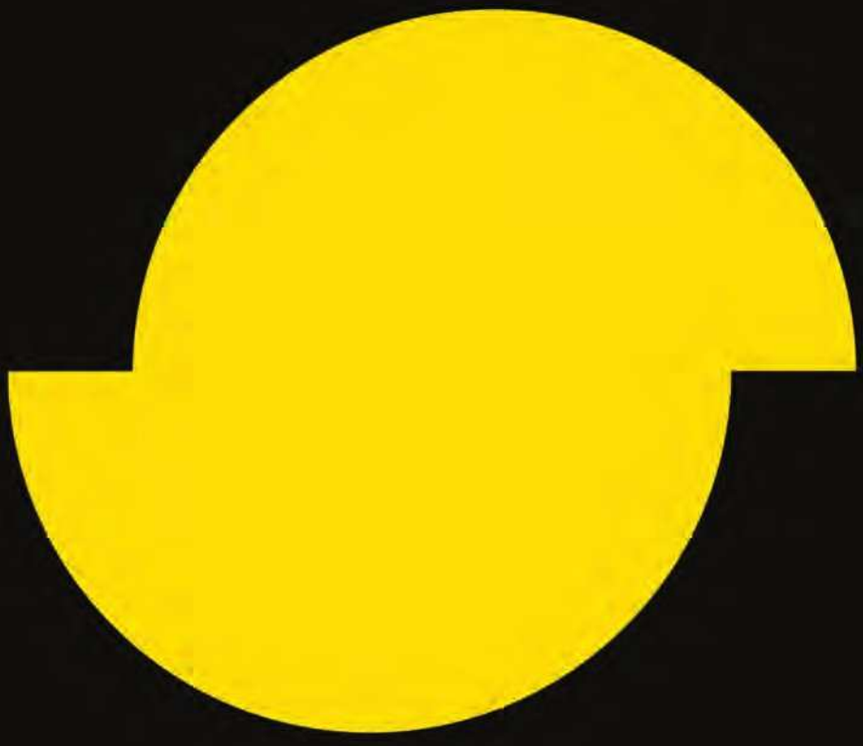

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